

BRIGHAM YOUNG UNIVERSITY BULLETIN



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# Brigham Young University Bulletin

**Graduate School Issue**

1974/75



Published by  
**Brigham Young University**  
Provo, Utah

Volume 71

Provo, Utah 84602

January 4, 1974

Bulletin No. 3

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**Brigham Young University Bulletin.** Published by Brigham Young University, Provo, Utah 84602, four times during August; three times during January, February, and September; two times during March and November; and one time during April, May, June, July, October, and December. Second-class postage paid at Provo, Utah 84602.

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# University Calendar

## Fall Semester, 1974

- April 30 (Tuesday):** Final date for international students to submit applications for Fall Semester, 1974
- June 30 (Sunday):** Final date for degree-seeking students to submit applications for Fall Semester, 1974
- July 15 (Monday):** Final date for nondegree-seeking students to submit applications for Fall Semester, 1974
- August 26, 27, 28 (Monday, Tuesday, Wednesday):** Preschool Faculty Conference
- August 29, 30, 31 (Thursday, Friday, Saturday):** Registration, finalization, and fee payment
- September 2 (Monday):** Labor Day Holiday
- September 3 (Tuesday):** Class instruction begins
- September 5 (Thursday):** First day changes in registration are permitted
- September 16 (Monday):** Last day on which late registration may occur for Fall Semester and on which classes may be added
- September 17 (Tuesday):** Fee in effect for dropping classes
- September 30 (Monday):** Final day for midsemester applications to be submitted
- October 18 (Friday):** Last day to drop first-block classes
- October 25 (Friday):** Midsemester registration
- October 28 (Monday):** Classes begin for midsemester
- November 1 (Friday):** Last day on which a student may officially drop a class for reasons other than nonacademic emergencies
- November 28, 29 (Thursday, Friday):** Thanksgiving holiday
- December 6 (Friday):** Last day on which a student may officially withdraw from the University or drop a class for any reason
- December 20 (Friday):** End of Fall Semester

## Winter Semester, 1975

- September 15 (Sunday):** Final date for international students to submit applications for Winter Semester, 1975
- November 15 (Friday):** Final date for degree-seeking students to submit applications for Winter Semester, 1975
- December 10 (Tuesday):** Final date for nondegree-seeking students to submit applications for Winter Semester, 1975
- January 2, 3, 4 (Thursday, Friday, Saturday):** Registration, finalization, and fee payment
- January 6 (Monday):** Class instruction begins
- January 8 (Wednesday):** First day changes in registration are permitted
- January 17 (Friday):** Last day on which late registration may occur for Spring Semester and on which classes may be added
- January 20 (Monday):** Fee in effect for dropping classes
- January 30 (Thursday):** Final date for midsemester applications to be submitted
- February 14 (Friday):** Last day to drop first block classes
- February 28 (Friday):** Midsemester registration
- March 3 (Monday):** Classes begin for midsemester
- March 7 (Friday):** Last day on which a student may officially drop a class for reasons other than nonacademic emergencies
- April 4 (Friday):** Last day on which a student may officially withdraw from the University or drop a class for any reason
- April 17 (Thursday):** Final day of Winter Semester
- April 18 (Friday):** Commencement exercises and college convocations

## Spring Term, 1975

- January 10 (Friday):** Final date for international students to submit applications for Spring Term, 1975
- March 10 (Monday):** Final date for degree-seeking students to submit applications for Spring Term, 1975
- March 20 (Thursday):** Final date for nondegree-seeking students to submit applications for Spring Term, 1975
- April 24, 25 (Thursday, Friday):** Registration, finalization, and fee payment
- April 28 (Monday):** Class instruction begins
- April 30 (Wednesday):** First day changes in registration are permitted
- May 6 (Tuesday):** Last day on which registration may occur for Spring Term and on which classes may be added
- May 7 (Wednesday):** Fee in effect for dropping classes
- May 26 (Monday):** Memorial Day holiday
- May 28 (Wednesday):** Last day on which a student may officially drop a class for reasons other than nonacademic emergencies
- June 11 (Wednesday):** Last day on which a student may officially withdraw from the University or drop a class for any reason
- June 19 (Thursday):** End of Spring Term

## Summer Term, 1975

- March 15 (Saturday):** Final date for international students to submit applications for Summer Term, 1975
- May 15 (Thursday):** Final date for degree-seeking students to submit applications for Summer Term, 1975
- May 30 (Friday):** Final date for nondegree-seeking students to submit applications for Summer Term, 1975
- June 20, 21 (Friday, Saturday):** Registration, finalization, and fee payment
- June 23 (Monday):** Class instruction begins
- June 25 (Wednesday):** First day changes in registration are permitted
- July 1 (Tuesday):** Last day on which late registration may occur for Summer Term and on which classes may be added
- July 2 (Wednesday):** Fee in effect for dropping classes
- July 4 (Friday):** National holiday
- July 23 (Wednesday):** Last day on which a student may officially drop a class for reasons other than nonacademic emergencies
- July 24 (Thursday):** State holiday
- August 6 (Wednesday):** Last day on which a student may officially withdraw from the University or drop a class for any reason
- August 13, 14 (Wednesday, Thursday):** End of classes and examination for Summer Term
- August 15 (Friday):** Commencement exercises and college convocations
- August 25 (Monday):** 1975-76 activities begin

# Administration and Faculty

## Board of Trustees of Brigham Young University

### Officers of the Board

|                          |                       |
|--------------------------|-----------------------|
| Spencer W. Kimball ..... | President             |
| N. Eldon Tanner .....    | First Vice-President  |
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### Members of the Board

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| Marion G. Romney   | Gordon B. Hinckley            | A. Theodore Tuttle |
| Ezra Taft Benson   | Thomas S. Monson              | Paul H. Dunn       |
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| Delbert L. Stapley | Marvin J. Ashton              | Belle S. Spafford  |
| LeGrand Richards   | Bruce R. McConkie             |                    |
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### Executive Committee

## Board of Trustees of Brigham Young University

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| Howard W. Hunter,<br>Chairman | Gordon B. Hinckley<br>Thomas S. Monson | Boyd K. Packer<br>Marion D. Hanks |
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## Office of the Church Commissioner of Education

|   |                    |
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| Commissioner .....  | Neal A. Maxwell    |
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| Associate Commissioner, Colleges and Schools, and Secretary of<br>the Executive Committee and the Board of Trustees ..... | Kenneth H. Beesley |
| Associate Commissioner, Seminaries and Institutes .....   | Joe J. Christensen |

## University Administrative Officers

|   |                     |
|---|---------------------|
| President .....   | Dallin H. Oaks      |
| Executive Vice-President .....                            | Ben E. Lewis        |
| Academic Vice-President .....                             | Robert K. Thomas    |
| Vice-President and General Counsel .....                  | Clyde D. Sandgren   |
| Associate Academic Vice-President .....                   | Robert J. Smith     |
| Assistant Vice-President for Business Affairs .....       | Fred A. Schwendiman |
| Administrative Assistant to the President .....           | Dean A. Peterson    |
| Assistant to the President .....                          | Bruce C. Hafen      |
| Director of University Relations .....                    | Bruce L. Olsen      |
| Dean of Student Life .....                                | J. Elliot Cameron   |
| Assistant Academic Vice-President .....                   | Darrel J. Monson    |
| Associate General Counsel .....                           | H. Hal Visick       |
| Administrative Assistant to Academic Vice-President ..... | L. Robert Webb      |
| Administrative Assistant to Academic Vice-President ..... | Don W. Abel         |

## Schools

|                                   |                    |
|-----------------------------------|--------------------|
| Dean of the Graduate School ..... | Chauncey C. Riddle |
| Dean of the Law School .....      | Rex E. Lee         |

### Deans of Colleges

|  |                      |
|--|----------------------|
| Biological and Agricultural Sciences ..... | A. Lester Allen      |
| Business .....                             |                      |
| Education .....                            | Curtis N. VanAlfen   |
| Engineering Sciences and Technology .....  | Armin J. Hill        |
| Family Living .....                        | Blaine R. Porter     |
| Fine Arts and Communications .....         | Lael J. Woodbury     |
| General Studies .....                      | C. Terry Warner      |
| Humanities .....                           | Bruce B. Clark       |
| Nursing .....                              | Maxine J. Cope       |
| Physical and Mathematical Sciences .....   | Jae R. Ballif        |
| Physical Education .....                   | Milton F. Hartvigsen |
| Religious Instruction .....                | Jeffrey R. Holland   |
| Social Sciences .....                      | Martin B. Hickman    |

### Deans and Directors of General Areas

|  |                     |
|--|---------------------|
| Admissions and Records .....           | Robert W. Spencer   |
| Director of Libraries .....            | Donald K. Nelson    |
| Director of Research .....             | Leo P. Vernon       |
| Division of Continuing Education ..... | Stanley A. Peterson |

### Graduate Council

#### Representatives of Academic Areas

- H. Duane Smith, Biological and Agricultural Sciences. Term expires September 1, 1975.  
 Robert H. Daines, Business. Term expires September 1, 1975.  
 Ruel A. Allred, Education. Term expires September 1, 1975.  
 Richard W. Hanks, Engineering Sciences and Technology. Term expires September 1, 1974.  
 D. Eugene Mead, Family Living. Term expires September 1, 1976.  
 Owen S. Rich, Fine Arts and Communications. Term expires September 1, 1975.  
 Edward L. Hart, Humanities. Term expires September 1, 1976.  
 Jerry D. Grover, Industrial and Technical Education. Term expires September 1, 1974.  
 W. Keith Warner, Social Sciences. Term expires September 1, 1975.  
 Donald W. Robinson, Physical and Mathematical Sciences. Term expires September 1, 1976.  
 Donald D. Shaw, Physical Education. Term expires September 1, 1976.  
 Milton V. Backman, Jr., Religious Instruction. Term expires September 1, 1976.

#### Members at Large

- Dean B. Farnsworth. Term expires September 1, 1975.  
 Arthur R. Watkins. Term expires September 1, 1976.  
 Keith P. Anderson. Term expires September 1, 1976.  
 Glen T. Nelson. Term expires September 1, 1974.  
 Chauncey C. Riddle, Dean, Graduate School, Chairman.  
 Robert W. Laird, Asst. Dean, Graduate School.

### Directors of Academic Programs

|   |                   |
|---|-------------------|
| Graduate Department of Library and Information Sciences ..... | H. Thayne Johnson |
| Institute of Government Service .....                         | Karl N. Snow, Jr. |
| Master of Business Administration .....                       | Robert H. Daines  |



## Department Chairmen and Graduate Coordinators

| Department  | Chairman            | Coordinator         |
|---|---------------------|---------------------|
| Accounting .....  | Leon W. Woodfield   | Dale H. Taylor      |
| Agriculture .....                                       |                     | LaMont Smith        |
| Ancient Scripture .....                                 | Robert C. Patch     | Robert C. Patch     |
| Anthropology and Archaeology .....                      | Merlin G. Myers     | M. Wells Jakeman    |
| Art and Design .....                                    | W. Douglas Stout    | Floyd E. Breinholt  |
| Astronomy (See Physics and Astronomy)                   |                     |                     |
| Botany and Range Science .....                          | Kimball Harper      | Leslie Whitton      |
| Business Education .....                                | G. Edward Nelson    | R. DerMont Bell     |
| Chemical Engineering Science .....                      | L. Douglas Smoot    | Richard W. Hanks    |
| Chemistry .....   | Richard T. Hawkins  | Keith P. Anderson   |
| Biochemistry .....                                      |                     | Clark Gubler        |
| Child Development and Family Relationships .....        | J. Joel Moss        | D. Eugene Mead      |
| Church History and Doctrine .....                       | LaMar C. Berrett    | LaMar C. Berrett    |
| Civil Engineering Science .....                         | James R. Barton     | S. Olani Durrant    |
| Classical, Biblical, and Middle Eastern Languages ..... | J. Reuben Clark III | R. Douglas Phillips |
| Communications .....                                    | Edwin O. Haroldsen  | Owen S. Rich        |
| Computer Science .....                                  | C. Edwin Dean       | Bill R. Hays        |
| Economics .....   | Wayne W. Clark      | J. Kenneth Davies   |
| Education   |                     |                     |
| Educational Administration ..                           | Ralph B. Smith      | Ralph B. Smith      |
| Educational Psychology .....                            | Darwin F. Gale      | Darwin F. Gale      |
| Elementary Education .....                              | Floyd Sucher        | Ruel A. Allred      |
| Secondary Education and Foundations .....               | Wallace E. Allred   | Wallace E. Allred   |
| Electrical Engineering Science .....                    | Ferril A. Losee     | Richard Woodbury    |
| English .....   | Marshall R. Craig   | Dean B. Farnsworth  |
| Food Science and Nutrition .....                        | John M. Hill        | John Hal Johnson    |
| French and Italian .....                                | Norman C. Turner    | Norman C. Turner    |
| Geography .....   | Robert L. Layton    | Alan H. Grey        |
| Geology .....   | W. Revell Phillips  | Myron G. Best       |
| Germanic Languages .....                                | Arthur R. Watkins   | Murray F. Smith     |
| Health Science .....                                    | Ray Watters         | Donald D. Shaw      |
| History .....   | Ted J. Warner       | Thomas Alexander    |
| Home Economics Education .....                          | Ruth E. Brasher     | Ruth E. Brasher     |
| Humanities and Comparative Literature .....             | Todd Britsch        | Ralph A. Britsch    |
| Industrial Education .....                              | William E. McKell   | Clark Roan          |
| Linguistics .....                                       | Soren F. Cox        |                     |
| Linguistics .....                                       |                     | Robert W. Blair     |
| Teaching English as a Second Language (TESL) ..         |                     | Harold S. Madsen    |
| Mathematics .....                                       | Kenneth L. Hillam   | Kenneth L. Hillam   |
| Mechanical Engineering Science .....                    | John M. Simonsen    | Howard Heaton       |
| Microbiology .....                                      | David M. Donaldson  | Richard D. Sagers   |
| Music .....   | A. Harold Goodman   | Quentin R. Nordgren |
| Organizational Behavior .....                           | William G. Dyer     | William G. Dyer     |
| Physical Education .....                                | Elmo S. Roundy      | Donald D. Shaw      |
| Physics and Astronomy .....                             | B. Kent Harrison    | J. Dean Barnett     |
| Political Science .....                                 | Jesse W. Reeder     | Melvin Mabey        |
| Psychology .....  | Darhl M. Pedersen   | Donovan Fleming     |
| Recreation Education .....                              | William J. Hafen    | Donald D. Shaw      |
| Sociology .....   | Evan T. Peterson    | Howard M. Bahr      |
| Spanish and Portuguese .....                            | M. Carl Gibson      | M. Carl Gibson      |

|                                |                  |                    |
|--------------------------------|------------------|--------------------|
| Speech and Dramatic Arts ..... | Parley W. Newman |                    |
| Communicative Habilitation ..  |                  | Ross M. Weaver     |
| Dramatic Arts .....            |                  | Karl T. Pope       |
| Speech .....                   |                  | Brent Peterson     |
| Statistics .....               | H. Gill Hilton   | Gary B. Beus       |
| Zoology .....                  | Joseph R. Murphy | Ferron L. Andersen |

### Coordinators of Areas

|                              |                       |
|------------------------------|-----------------------|
| Asian Studies .....          | Spencer J. Palmer     |
| Latin-American Studies ..... | Lyman S. Shreeve, Sr. |

### The Faculty of the Graduate School

The faculty of the Graduate School consists of members of the general faculty who are approved by a committee of graduate faculty from among those who hold the rank of professor or associate professor, or assistant professor with a doctoral degree. For special reason related to exceptional qualification, the Graduate Council is authorized to appoint to the graduate faculty a member who does not hold the doctoral degree.

### Emeriti

- Beulah Ream Allen** ..... Professor Emeritus of Nursing (1961)  
Diploma, Illinois Training School for Nurses, Cook County Hospital, Chicago, Illinois, 1922; B.A., University of Utah, 1928; M.D., University of California, 1932.
- Clarence D. Ashton** ..... Associate Professor Emeritus of Horticulture (1951)  
B.S., Brigham Young University, 1929.
- Owen L. Barnett** .... Associate Professor Emeritus of Educational Administration  
B.S., M.S., Brigham Young University, 1923, 1927. (1950)
- William E. Berrett** ..... Professor Emeritus of Church History and Doctrine (1971)  
A.B., L.B., J.D., University of Utah, 1924, 1933, 1966; Honorary L.D., Brigham Young University, 1965.
- Loren C. Bryner** ..... Professor Emeritus of Chemistry (1935)  
B.S., M.S., Brigham Young University, 1928, 1930; Ph.D., Iowa State University, 1934.
- Jennie Campbell** ..... Associate Professor Emeritus of Education (1952)  
B.S., Brigham Young University, 1928; M.A., Teachers College, Columbia University, 1937.
- Clawson Y. Cannon, Sr.** ..... Professor Emeritus of Animal Science (1956)  
B.S., Utah State University, 1913; M.S., Ph.D., Iowa State College, 1924, 1927.
- Thomas E. Cheney** ..... Professor Emeritus of English (1945)  
B.S., Utah State University, 1930; M.A., University of Idaho, 1936.
- Monroe H. Clark** ..... Associate Professor Emeritus of Philosophy of Education and Guidance (1945)  
B.A., Columbia University, 1923; M.A., Brigham Young University, 1927.
- A. John Clarke** ..... Professor of Education (1938)  
B.S., M.S., Brigham Young University, 1938, 1942; Ed.D., Colorado University, 1950.
- Evan M. Croft** ..... Associate Professor Emeritus of Business Education (1936)  
B.S., Brigham Young University, 1929; M.S., University of Southern California, 1940.
- Gerrit de Jong, Jr.** ..... Professor Emeritus of Modern Languages; Dean Emeritus, College of Fine Arts (1925)  
B.A., M.A., University of Utah, 1920, 1925; Ph.D., Stanford University, 1933.
- G. Byron Done** ..... Professor Emeritus of Ancient Scriptures (1956)  
B.A., University of Utah, 1928; M.A., Ph.D., University of Southern California, 1937, 1939.
- J. Orval Ellsworth** ..... Professor Emeritus of Religious Instruction (1954)  
B.S., Utah State University, 1917; M.S., Ph.D., Cornell University, 1924, 1926.
- Harvey Fletcher** ..... Professor Emeritus of Physics; Dean Emeritus, College of Physical and Engineering Sciences (1952)  
B.S., Brigham Young University, 1907; Ph.D., Chicago University, 1911; hon. Sc.D., Columbia University, 1935; hon. Sc.D., Kenyon College, 1942; hon. Sc.D., Stevens



Institute of Technology, 1942; hon. Sc.D., Case School of Applied Sciences, 1942; hon. Sc.D., University of Utah, 1944; hon. Sc.D., Brigham Young University, 1954.

**Nan Osmond Grass** ..... Associate Professor of English (1951)  
B.A., Brigham Young University, 1930; M.A., Stanford University, 1954.

**LeRoy R. Hafen** ..... Professor Emeritus of History (1954)  
B.A., Brigham Young University, 1916; M.A., University of Utah, 1919; Ph.D., University of California, 1924; Litt.D., University of Colorado, 1935.

**Wayne B. Hales** ..... Professor Emeritus of Physics and Mathematics;  
Dean Emeritus, General College (1930)  
B.A., Brigham Young University, 1916; M.A., University of Utah, 1922; Ph.D., California Institute of Technology, 1926.

**George H. Hansen** ..... Professor Emeritus of Geology and Geography (1927)  
B.S., Utah State University, 1918; M.S., Ph.D., George Washington University, 1925, 1927.

**C. Lynn Hayward** ..... Professor Emeritus of Zoology (1930)  
B.S., M.S., Brigham Young University, 1927, 1931; Ph.D., University of Illinois, 1941.

**Gustive O. Larsen** ..... Associate Professor Emeritus of History and  
Religion (1954)  
B.A., M.A., University of Utah, 1920, 1926.

**Wesley P. Lloyd** ..... Professor Emeritus of Education (1935)  
B.S., M.S., Brigham Young University, 1927, 1934; Ph.D., University of Chicago, 1937.

**Florence Jepperson Madsen** ..... Professor Emeritus of Music (1910)  
B.M., M.M., Chicago Musical College, 1926, 1927; Doctor of Music, Boguslawski College of Music, 1932; B.A., Brigham Young University, 1934; M.M., hon. Doctor of Music, Chicago College of Music, 1933.

**J. C. Moffitt** ..... Professor Emeritus of Educational Administration (1953)  
B.S., M.S., Brigham Young University, 1926, 1929; Ph.D., University of Chicago, 1940.

**A. Reed Morrill** ..... Professor Emeritus of Educational Administration (1948)  
B.S., M.S., Brigham Young University, 1928, 1937; Ed.D., University of Oregon, 1948.

**Sadie O. Morris** ..... Professor Emeritus of Food and Nutrition (1957)  
B.S., M.S., Utah State University, 1921, 1922; Ph.D., Columbia University, 1933.

**Hugh W. Peterson** ..... Professor Emeritus of Chemistry (1927)  
B.A., M.A., Brigham Young University, 1916, 1928; Ph.D., State University of Iowa, 1936.

**Antone K. Romney** ..... Distinguished Professor Emeritus of Comparative  
Education; Dean Emeritus of the College of Education (1945)  
B.S., M.S., Brigham Young University, 1933, 1934; Ed.D., Stanford University, 1947.

**J. Wyley Sessions** ..... Professor Emeritus of Religious Philosophy (1939)  
B.S., Utah State University, 1911; M.A., University of Idaho, 1928.

**Irene Osmond Spears** ..... Professor of Humanities and Comparative  
Literature (1936)  
B.A., Brigham Young University, 1929; M.A., Ph.D., Stanford University, 1934, 1942.

**Sidney B. Sperry** ..... Professor Emeritus of Old Testament Languages  
and Literature (1932)  
B.A., University of Utah, 1917; M.A., Ph.D., University of Chicago, 1926, 1931.

**Russel B. Swensen** ..... Professor Emeritus of History (1933)  
B.A., Brigham Young University, 1926; M.A., Ph.D., University of Chicago, 1931, 1934.

**Joseph N. Symons** ..... Professor Emeritus of Sociology (1953)  
B.S., M.S., Utah State University, 1927, 1932; Ph.D., University of Chicago, 1944.

**Orea B. Tanner** ..... Associate Professor Emeritus of English (1938)  
B.A., Brigham Young University, 1932; M.A., Columbia University, 1953.

**Vasco M. Tanner** ..... Professor Emeritus of Zoology (1925)  
B.A., Brigham Young University, 1915; M.A., University of Utah, 1920; Ph.D., Stanford University, 1925.

**L. Elliott Tuttle** ..... Associate Professor Emeritus of Geography (1936)  
B.S., M.S., Brigham Young University, 1938, 1948.

**Rudger H. Walker** ..... Professor Emeritus of Agronomy; Dean Emeritus  
of the College of Biological and Agricultural Sciences (1960)  
B.S., Brigham Young University, 1923; M.S., Ph.D., Iowa State University, 1925, 1927.

**Marguerite I. Wilson** ..... Associate Professor Emeritus of Special Education  
(1956)  
B.S., University of Utah, 1948; M.A., San Francisco State College, 1955; Ed.D., George Peabody College for Teachers, 1965.

**Karl E. Young** ..... Professor Emeritus of English (1930)  
B.A., M.A., Oxford University (England), 1930, 1934.

## Faculty

- George M. Addy** ..... Professor of History (1957)  
B.A., M.A., Brigham Young University, 1948, 1950; Ph.D., Duke University, 1957.
- Thomas G. Alexander** ..... Associate Professor of History (1964)  
B.S., M.S., Utah State University, 1960, 1961; Ph.D., University of California at Berkeley, 1965.
- A. Lester Allen** ..... Professor of Zoology;  
Dean, College of Biological and Agricultural Sciences (1954)  
B.A., Ph.D., University of California at Los Angeles, 1946, 1951.
- Dell K. Allen** ..... Associate Professor of Technology (1960)  
B.S., Utah State University, 1954; M.S., Brigham Young University, 1966.
- James B. Allen** ..... Professor of History (1963)  
B.S., Utah State University, 1954; M.A., Brigham Young University, 1956; Ph.D., University of Southern California, 1963.
- Stephen L. Alley** ..... Professor of Educational Philosophy (1956)  
B.S., M.S., University of Utah, 1947, 1951; Ed.D., Harvard University, 1958.
- Dorald M. Allred** ..... Professor of Zoology (1956)  
B.A., M.A., Brigham Young University, 1950, 1951; Ph.D., University of Utah, 1954.
- G. Hugh Allred** ..... Associate Professor of Child Development  
and Family Relationships (1966)  
B.A., M.A., Brigham Young University, 1957, 1960; Ed.D., University of Oregon, 1966.
- R. Chase Allred** ..... Professor of Agronomy (1955)  
B.S., Brigham Young University, 1948; M.S., Kansas State College, 1949; Ph.D., University of Nebraska, 1952.
- Ruel Acord Allred** ..... Professor of Education (1973)  
B.S., M.S., Brigham Young University, 1954, 1958; Ed.D., University of Oregon, 1965.
- Wallace E. Allred** ..... Associate Professor of Secondary Education (1956)  
B.S., M.Ed., Brigham Young University, 1956, 1957; M.S., Oregon State University, 1964; Ph.D., University of Utah, 1971.
- Philip E. Allsen** ..... Professor of Physical Education for Men (1966)  
B.S., Ricks College, 1955; M.S., Brigham Young University, 1960; Ed.D., University of Utah, 1965.
- Blaine Wright Andersen** ..... Professor of Mechanical Engineering Science (1970)  
B.S., University of Utah, 1949; M.S., Ph.D., University of Illinois, 1951, 1953.
- Ferron Lee Andersen** ..... Professor of Zoology (1966)  
B.S., M.S., Utah State University, 1957, 1960; M.S., University of Illinois, 1962; Ph.D., Utah State University, 1963.
- H. Verlan Andersen** ..... Professor of Accounting (1965)  
B.S., Brigham Young University, 1940; J.D., Stanford University, 1946; LL.M., Harvard University, 1948.
- William Ralph Andersen** ..... Professor of Botany (1966)  
B.S., M.S., Utah State University, 1956, 1958; Ph.D., University of California, 1963.
- A. Gary Anderson** ..... Assistant Professor of Church History and Doctrine (1971)  
B.S., University of Utah, 1958; M.S., Ed.D., Brigham Young University, 1960, 1968.
- C. Dixon Anderson** ..... Professor of Spanish (1956)  
B.A., Brigham Young University, 1953; M.A., Ph.D., University of Texas, 1956, 1965.
- Enid R. Anderson** ..... Instructor in Education (1968)  
B.S., Utah State University, 1951; M.A., Denver University, 1956; Ed.D., University of Utah, 1972.
- Keith P. Anderson** ..... Professor of Chemistry (1953)  
B.A., Brigham Young University, 1946; Ph.D., Cornell University, 1950.
- Lane K. Anderson** ..... Assistant Professor of Accounting (1970)  
B.A., M.Acc., Brigham Young University, 1965, 1966; MBA, Ph.D., University of Wisconsin, 1970; CPA, Utah, 1970.
- Richard L. Anderson** ..... Professor of History and Ancient Scripture (1955)  
B.A., M.A., Brigham Young University, 1951, 1957; J.D., Harvard Law School, 1954; Ph.D., University of California at Berkeley, 1962.
- Hyrum L. Andrus** ..... Professor of Church History and Doctrine (1956)  
B.S., Ricks College, 1951; M.S., Brigham Young University, 1952; DSS, Syracuse University, 1955.
- Gerald M. Armstrong** ..... Assistant Professor of Mathematics (1970)  
B.S., M.S., Brigham Young University, 1963, 1965; Ph.D., University of Wisconsin, 1971.

- Marilyn Arnold** ..... Assistant Professor of English (1969)  
B.A., M.A., Brigham Young University, 1957, 1958; Ph.D., University of Wisconsin, 1968.
- Leonard J. Arrington** ..... Professor of History; Redd Chair of Western History (1972)  
B.A., University of Idaho, 1939; Ph.D., University of North Carolina, 1952.
- Carlos E. Asay** ..... Professor of Education (1969)  
B.S., Ed.D., University of Utah, 1953, 1967; M.A., Long Beach State College, 1958.
- Nadine Ashby** ..... Assistant Professor of Business Education (1960)  
B.A., Brigham Young University, 1936; M.A., Colorado State College, 1959; Ph.D., University of North Dakota, 1971.
- Josette Ashford** ..... Instructor of French and Italian (1969)  
B.A., Ph.D., Brigham Young University, 1967, 1972.
- Alan C. Ashton** ..... Assistant Professor of Computer Science (1972)  
B.A., Ph.D., University of Utah, 1966, 1970.
- Peter P. Ashworth** ..... Assistant Professor of Spanish (1966)  
B.A., Brigham Young University, 1962; Ph.D., University of Oklahoma, 1967.
- Milton V. Backman, Jr.** ..... Professor of Church History and Doctrine (1960)  
B.S., M.A., University of Utah, 1954, 1955; Ph.D., University of Pennsylvania, 1959.
- James Logan Baer** ..... Assistant Professor of Geology (1969)  
B.S., Ohio State University, 1957; M.S., Ph.D., Brigham Young University, 1962, 1968.
- Howard Miner Bahr** ..... Professor of Sociology (1973)  
B.A., Brigham Young University, 1962; M.A., Ph.D., University of Texas, 1964, 1965.
- Stephen Joseph Bahr** ..... Assistant Professor of Child Development and Family Relationships (1973)  
B.S., M.S., Brigham Young University, 1968, 1969; Ph.D., Washington State University, 1972.
- J. Hugh Baird** ..... Professor of Education (1963)  
B.S., M.S., University of Utah, 1954, 1954; Ed.D., University of California at Berkeley, 1962.
- Joseph O. Baker** ..... Associate Professor of German (1967)  
B.A., University of Utah, 1964; Ph.D., Tulane University, 1968.
- Jae R. Ballif** ..... Dean, College of Physical and Mathematical Sciences; Professor of Physics (1962)  
B.S., Brigham Young University, 1953; M.A., Ph.D., University of California at Los Angeles, 1961, 1962.
- Blauer L. Bangert** ..... Professor of Physical Education (1953)  
B.A., Brigham Young University, 1951; M.S., Ph.D., University of Utah, 1955, 1964.
- Dee H. Barker** ..... Professor of Chemical Engineering (1959)  
B.S., Ph.D., University of Utah, 1948, 1951; Registered Professional Engineer, Utah, 1963.
- Ruel Barker** ..... Assistant Professor of Physical Education (1971)  
B.S., Utah State University, 1961; M.S., Ed.D., Brigham Young University, 1964, 1971.
- Howard W. Barnes** ..... Associate Professor of Business Management (1964)  
A.B., Harvard College, 1955; MBA, University of Southern California, 1963; Dr. rer Technische Universität Braunschweig, 1968.
- James R. Barnes** ..... Associate Professor of Zoology (1969)  
B.S., Brigham Young University, 1963; M.S., Oregon State University, 1967.
- J. Dean Barnett** ..... Professor of Physics (1958)  
B.A., Ph.D., University of Utah, 1954, 1959.
- Ralph Dale Barney** ..... Associate Professor of Communications (1971)  
B.S., Brigham Young University, 1957; M.A., University of Iowa, 1960; Ph.D., University of Missouri, 1971.
- Howard H. Barron** ..... Professor of Church History and Doctrine (1953)  
B.S., M.S., Utah State University, 1943, 1950; Ed.D., University of Utah, 1953.
- George S. Barrus** ..... Professor of Communications (1967)  
B.S., University of Utah, 1950; M.A., Brigham Young University, 1964; Ph.D., University of Iowa, 1969.
- Cliff S. Barton** ..... Professor of Civil Engineering; Assistant Dean, College of Physical and Engineering Sciences (1959)  
B.S., Utah State University, 1947; M.S., Ph.D., Rensselaer Polytechnic Institute, 1953, 1959.
- Grant E. Barton** ..... Assistant Professor of Educational Psychology; Research Associate, Instructional Research and Development (1970)  
B.A., M.A., University of Utah, 1966, 1968.



- James R. Barton** ..... Professor of Civil Engineering (1967)  
B.S., University of New Mexico, 1944; M.S., University of Colorado, 1946; Ph.D., Colorado State University, 1958; Registered Engineer, Utah, 1949.
- Robert W. Bass** ..... Professor of Physics (1972)  
B.A., Johns Hopkins University, 1950; M.A. Oxon., Oxford University, 1952; Ph.D., Johns Hopkins University, 1955.
- J. LaVar Bateman** ..... Professor of Speech (1949)  
B.A., Brigham Young University, 1941; M.S., Ph.D., University of Wisconsin, 1947, 1950.
- Edith Bartholomew Bauer** ..... Professor of Educational Psychology (1945)  
B.A., M.A., Brigham Young University, 1930, 1946; Ph.D., University of California at Berkeley, 1940.
- LeRoy Wood Bearson** ..... Assistant Professor of Electrical Engineering (1972)  
BSEE, University of Utah, 1961; MSEE, Syracuse University, 1965; Ph.D., Auburn University, 1970.
- Jay V. Beck** ..... Professor of Microbiology (1951)  
B.A., M.A., Brigham Young University, 1933, 1936; Ph.D., University of California at Berkeley, 1940.
- Raymond E. Beckham** ..... Associate Professor of Communications (1970)  
B.S., M.A., Brigham Young University, 1949, 1969; Ph.D., Southern Illinois University, 1972.
- R. DerMont Bell** ..... Professor of Business Education (1957)  
B.S., M.S., Brigham Young University, 1955, 1956; Ph.D., University of Southern California, 1960.
- Parley L. Belnap** ..... Assistant Professor of Music (1965)  
B.A., M.A., Brigham Young University, 1950, 1956; Premier Prix, Royal Flemish Conservatory, Belgium, 1960; Diplome Superieur, Royal Flemish Conservatory, Belgium, 1964.
- W. Dwayne Belt** ..... Professor of Secondary Education (1961)  
B.A., Brigham Young University, 1952; M.A., Ed.D., Colorado State College, 1958, 1961.
- Marion Bennion** ..... Professor of Food Science and Nutrition (1952)  
B.S., Utah State University, 1947; M.S., Teachers College, Columbia University, 1949; Ph.D., University of Wisconsin, 1956.
- Robert C. Bennion** ..... Professor of Psychology (1961)  
B.A., Brigham Young University, 1956; M.A., Ph.D., Ohio State University, 1959, 1961.
- Dale L. Berge** ..... Assistant Professor of Anthropology  
and Archaeology (1967)  
B.S., M.A., Brigham Young University, 1961, 1964; M.A., Ph.D., University of Arizona, 1967, 1968.
- Allen Eric Bergin** ..... Professor of Psychology (1972)  
B.S., M.S., Brigham Young University, 1956, 1957; Ph.D., Stanford University, 1960.
- LaMar C. Berrett** ..... Professor of Church History and Doctrine (1963)  
B.S., University of Utah, 1952; M.S., Ed.D., Brigham Young University, 1960, 1963.
- Paul O. Berrett** ..... Professor of Electrical Engineering (1964)  
B.S., University of Utah, 1953; M.S., University of Southern California, 1955; Ph.D., University of Utah, 1965.
- Max J. Berryessa** ..... Professor of Elementary Education (1948)  
B.S., M.S., Brigham Young University, 1948, 1949; Ed.D. Stanford University, 1959.
- Brian Stanley Best** ..... Assistant Professor of English (1960)  
B.S., M.A., Brigham Young University, 1958, 1962; Ph.D., University of Wisconsin, 1971.
- Myron G. Best** ..... Professor of Geology (1965)  
B.S., University of Utah, 1957; Ph.D., University of California at Berkeley, 1961.
- Rollie Ray Bestor** ..... Assistant Professor of Physical Education (1969)  
B.S., M.S., University of Wisconsin, 1954, 1958; Ed.D., Brigham Young University, 1969.
- Gary Boyd Beus** ..... Associate Professor of Statistics (1967)  
B.A., Brigham Young University, 1962; M.S., Ph.D., Virginia Polytechnic Institute, 1965, 1968.
- H. Lynn Beus** ..... Associate Professor of Computer Science (1971)  
B.A., Brigham Young University, 1961; M.S., Case Institute of Technology, 1964; Ph.D., Case Western Reserve University, 1967.
- James L. Bills** ..... Associate Professor of Chemistry (1962)  
B.S., University of Utah, 1958; Ph.D., Massachusetts Institute of Technology, 1963.
- Bahe Billy** ..... Assistant Professor of Agronomy and Horticulture (1970)  
B.S., Utah State University, 1960; M.S., Ph.D., University of Arizona, 1964, 1970.

- Ronald D. Bingham** ..... Assistant Professor of Educational Psychology (1971)  
A.A., Weber State College, 1956; B.S., Utah State University, 1961; M.Ed., Ph.D., Pennsylvania State University, 1965, 1970.
- Russell H. Bishop** ..... Associate Professor of Education (1966)  
B.A., M.A., University of Utah, 1954, 1964; Ph.D., University of Oregon, 1966.
- Harold J. Bissell** ..... Professor of Geology (1938)  
B.S., Brigham Young University, 1934; M.S., Ph.D., University of Iowa, 1936, 1948.
- Harvey B. Black** ..... Instructional Research Specialist; Professor of Education (1970)  
A.B., M.A., Brigham Young University, 1950, 1954; Ph.D., Indiana University, 1962.
- Angus U. Blackham** ..... Professor of Chemistry (1952)  
B.A., Brigham Young University, 1949; M.A., Ph.D., University of Cincinnati, 1950, 1952.
- Robert W. Blair** ..... Professor of Linguistics (1959)  
B.A., M.A., Brigham Young University, 1955, 1957; Ph.D., Indiana University, 1964.
- Reed H. Blake** ..... Associate Professor of Sociology (1967)  
B.S., M.S., Brigham Young University, 1957, 1959; Ph.D., Utah State University, 1968.
- Mae Blanch** ..... Associate Professor of English (1958)  
B.A., Brigham Young University, 1950; Ph.D., University of Colorado, 1966.
- Howard L. Bodily** ..... Professor of Microbiology (1972)  
B.S., University of Idaho, 1935; M.S., Iowa State University, 1936; Ph.D., University of Colorado, 1938.
- Gary M. Booth** ..... Associate Professor of Zoology (1973)  
B.S., M.S., Utah State University, 1963, 1966; Ph.D., University of California at Riverside, 1969.
- Walter D. Bowen** ..... Associate Professor of Church History and Doctrine (1964)  
B.S., M.S., Ed.D., Brigham Young University, 1957, 1958, 1965.
- Lawrence S. Bowman** ..... Associate Professor of Electrical Engineering (1967)  
B.S., M.S., Ph.D., University of Utah, 1957, 1961, 1964.
- Glen L. Boyer** ..... Assistant Professor of Business Education (1967)  
B.S., Utah State University, 1963; M.S., Ph.D., University of North Dakota, 1966, 1972.
- Reed H. Bradford** ..... Professor of Sociology (1946)  
B.A., Brigham Young University, 1937; M.A., Louisiana State University, 1939; M.A., Ph.D., Harvard University, 1941, 1946.
- Rulon L. Bradley** ..... Professor of Communications (1965)  
B.A., Brigham Young University, 1947; M.S., Ph.D., University of Utah, 1954, 1962.
- Jerald S. Bradshaw** ..... Associate Professor of Chemistry (1966)  
B.S., University of Utah, 1955; Ph.D., University of California at Los Angeles, 1963.
- Merrill Kay Bradshaw** ..... Professor of Music (1957)  
B.A., M.A., Brigham Young University, 1954, 1955; M.Mus., D.Mus.A., University of Illinois, 1956, 1962.
- Willard H. Bradshaw** ..... Associate Professor of Microbiology (1961)  
B.S., M.S., Brigham Young University, 1952, 1953; Ph.D., University of California at Berkeley, 1957.
- William S. Bradshaw** ..... Assistant Professor of Zoology (1970)  
B.A., Harvard University, 1961; Ph.D., University of Illinois, 1968.
- Marion B. Brady** ..... Associate Professor of English (1965)  
B.A., M.A., Brigham Young University, 1950, 1951; Ph.D., University of Utah, 1966.
- Lee Fred Braithwaite** ..... Associate Professor of Zoology (1973)  
B.S., M.S., Ph.D., Brigham Young University, 1959, 1962, 1970.
- Ruth E. Brasher** ..... Professor of Home Economics Education (1969)  
B.S., Brigham Young University, 1951; M.A., University of Maryland, 1959; Ph.D., Utah State University, 1969.
- Floyd E. Breinholt** ..... Associate Professor of Art (1961)  
B.S., M.E., Brigham Young University, 1937, 1953.
- Willis H. Brimhall** ..... Professor of Geology (1956)  
B.S., Brigham Young University, 1949; M.S., University of Arizona, 1961; B.S., Brigham Young University, 1960; Ph.D., Rice University, 1966.
- Ralph A. Britsch** ..... Professor of Humanities and Comparative Literature (1938)  
B.A., M.A., Brigham Young University, 1933, 1951.
- Ralph Lanier Britsch** ..... Assistant Professor of History (1966)  
B.A., M.A., Brigham Young University, 1963, 1964; Ph.D., Claremont Graduate School, 1968.

- Todd A. Britsch** ..... Associate Professor of Humanities and Comparative Literature (1966)  
B.A., Brigham Young University, 1962; M.A., Ph.D., Florida State University, 1965, 1966.
- H. Smith Broadbent** ..... Professor of Chemistry (1946)  
B.S., Brigham Young University, 1942; Ph.D., Iowa State University, 1946.
- Jack Devon Brotherson** ..... Assistant Professor of Botany (1969)  
B.S., M.S., Brigham Young University, 1964, 1967; Ph.D., Iowa State University, 1969.
- Bruce Leonard Brown** ..... Associate Professor of Psychology (1968)  
B.S., M.S., Brigham Young University, 1965, 1967; Ph.D., McGill University, 1969.
- J. Richard Brown** ..... Assistant Professor of Elementary Education (1956)  
B.S., M.Ed., Brigham Young University, 1949, 1956.
- Kay Frederick Brown** ..... Assistant Professor of Technology (1967)  
B.S., M.S., University of California at Los Angeles, 1959, 1964.
- S. Kent Brown** ..... Assistant Professor of Ancient Scripture (1971)  
B.A., University of California, 1967; Ph.D., Brown University, 1972.
- Thomas H. Brown** ..... Professor of French (1959)  
B.A., Brigham Young University, 1955; M.A., Ph.D., University of Illinois, 1957, 1960.
- Eugene Taylor Buckner** ..... Counselor in Personal Development Center,  
Assistant Professor of Educational Psychology (1968)  
B.S., M.S., Ph.D., Brigham Young University, 1954, 1962, 1970.
- Doyle W. Buckwalter** ..... Associate Professor of Political Science (1964)  
B.A., M.A., Brigham Young University, 1963, 1964; Ph.D., University of Michigan, 1968.
- Wallace Don Budge** ..... Professor of Civil Engineering (1964)  
B.S., M.S., Utah State University, 1959, 1961; Ph.D., University of Colorado, 1964.
- Kenneth C. Bullock** ..... Professor of Geology (1943)  
B.S., M.A., Brigham Young University, 1940, 1942; Ph.D., University of Wisconsin, 1949.
- C. Victor Bunderson** ..... Professor of Computer Science (1972)  
B.S., University of Utah, 1961; Ph.D., Princeton University, 1965.
- Gary L. Bunker** ..... Associate Professor of Psychology (1969)  
B.A., M.A., Brigham Young University, 1960, 1961; Ph.D., University of California at Berkeley, 1966.
- Owen Robert Burgener** ..... Assistant Professor of Health Science (1964)  
B.S., Utah State University, 1953; MPH, University of California at Berkeley, 1964.
- M. Dallas Burnett** ..... Professor of Communications (1958)  
B.S., Brigham Young University, 1954; MSJ, Ph.D., Northwestern University, 1958, 1967.
- Wesley M. Burnside** ..... Associate Professor of Art (1958)  
B.S., M.S., Brigham Young University, 1941, 1949; Ph.D., Ohio State University, 1970.
- Wesley R. Burr** ..... Associate Professor of Child Development  
and Family Relationships (1961)  
B.S., M.S., Brigham Young University, 1960, 1961; Ph.D., University of Minnesota, 1967.
- Percy E. Burrup** ..... Professor of Educational Administration (1952)  
B.S., M.S., Utah State University, 1932, 1941; Ed.D., Colorado State College of Education, 1951.
- Alma P. Burton** ..... Professor of Church History and Doctrine (1970)  
B.S., Utah State University, 1948; M.S., Brigham Young University, 1950; Ed.D., University of Utah, 1957.
- Robert C. Burton** ..... Professor of Mathematics (1964)  
B.S., Brigham Young University, 1956; Ph.D., University of North Carolina, 1963.
- Sheril Dale Burton** ..... Associate Professor of Microbiology (1967)  
B.S., M.S., Brigham Young University, 1959, 1961; Ph.D., Oregon State University, 1964.
- Jess R. Bushman** ..... Professor of Geology (1955)  
B.A., Brigham Young University, 1949; Ph.D., Princeton University, 1959.
- Eliot A. Butler** ..... Professor of Chemistry (1956)  
B.S., Ph.D., California Institute of Technology, 1952, 1956.
- Owen William Cahoon** ..... Associate Professor of Child Development  
and Family Relationships (1970)  
B.S., M.S., Utah State University, 1963, 1964; D.Ed., Pennsylvania State University, 1970.



- C. Boyd Call** ..... Professor of Physical Education (1960)  
B.S., University of Utah, 1950; Physical Therapy Certificate from Children's Hospital in Los Angeles, 1953; M.S., Brigham Young University, 1963; Ph.D., University of Oregon, 1967.
- Duane Bowen Call** ..... Assistant Professor of Computer Science (1971)  
B.S., Brigham Young University, 1967; Ph.D., University of Utah, 1971.
- Ivan T. Call** ..... Associate Professor of Business Management (1963)  
B.S., Brigham Young University, 1958; MBA, DBA, Indiana University, 1959, 1969.
- James B. Cameron** ..... Associate Professor of Accounting (1969)  
B.S., University of Utah, 1956; MBA, University of California at Los Angeles, 1958; CPA, Idaho, 1960; Ph.D., Montana State University, 1967.
- J. Elliot Cameron** ..... Professor of Education; Dean of Student Life (1962)  
B.S., M.S., Ed.D., Brigham Young University, 1949, 1949, 1966.
- Douglas M. Campbell** ..... Assistant Professor of Mathematics (1971)  
B.A., Harvard University, 1967; Ph.D., University of North Carolina, 1971.
- Eugene E. Campbell** ..... Professor of History (1956)  
B.A., M.A., University of Utah, 1939, 1940; Ph.D., University of Southern California, 1952.
- Milo Kay Campbell** ..... Assistant Professor of Elementary Education (1966)  
B.A., M.Ed., Brigham Young University, 1961, 1966; Ph.D., Wayne State University, 1972.
- Donald Quayle Cannon** ..... Associate Professor of Church History  
and Doctrine (1973)  
B.A., M.A., University of Utah, 1961, 1962; Ph.D., Clark University, 1967.
- John N. Cannon** ..... Professor of Mechanical Engineering (1957)  
BSME, M.S., University of Utah, 1952, 1955; Ph.D., Stanford University, 1965; Registered Professional Engineer, Utah, 1958.
- Kenneth L. Cannon** ..... Professor of Child Development and  
Family Relationships (1956)  
B.S., Brigham Young University, 1935; M.S., Ph.D., Iowa State College, 1948, 1954.
- Louis B. Cardon** ..... Associate Professor of History (1960)  
B.A., University of Arizona, 1950; M.A., Ph.D., University of California at Berkeley, 1957, 1965.
- Gary Carlson** ..... Director of Computer Services;  
Professor of Computer Science (1963)  
B.A., M.A., Ph.D., University of California at Los Angeles, 1956, 1958, 1962.
- G. Alvin Carpenter** ..... Professor of Agricultural Economics (1970)  
B.S., Utah State University, 1936; M.S., University of California, 1937; Ph.D., Cornell University, 1952.
- K. Codell Carter** ..... Associate Professor of Philosophy (1973)  
B.S., M.A., University of Utah, 1963, 1964; Ph.D., Cornell University, 1968.
- Melvin W. Carter** ..... Professor of Statistics (1961)  
B.S., Arizona State College, 1953; M.S., Ph.D., North Carolina State College, 1954, 1956.
- Leland S. Case** ..... Associate Professor of Economics (1972)  
B.S., University of Utah, 1963; M.A., Ph.D., Northwestern University, 1967, 1968.
- Raymond Nielson Castle** ..... Professor of Chemistry (1970)  
B.S., University of Idaho, 1939; M.A., Ph.D., University of Colorado, 1941, 1944.
- Bruce A. Chadwick** ..... Associate Professor of Sociology (1972)  
B.A., M.A., Ph.D., Washington University, 1964, 1965, 1967.
- Jonathan M. Chamberlain** ..... Counselor in Personal Development Center;  
Assistant Professor of Educational Psychology (1970)  
B.A., Brigham Young University, 1958; M.Ed., Ph.D., University of Wyoming, 1964, 1967.
- David L. Chandler** ..... Assistant Professor of History (1970)  
B.S., Brigham Young University, 1963; M.A., Ph.D., Tulane University, 1965, 1972.
- Arthur O. Chapman** ..... Professor of Zoology (1959)  
B.A., Brigham Young University, 1941; M.A., University of Kansas, 1949; Ph.D., University of Nebraska, 1953.
- Kenneth W. Chase** ..... Assistant Professor of Mechanical Engineering (1968)  
BES, M.S., Brigham Young University, 1962, 1964; Ph.D., University of California at Berkeley, 1972.
- A. Norton Chaston** ..... Associate Professor of Electrical Engineering (1957)  
B.S., University of Utah, 1951; M.S., Brigham Young University, 1963.
- Louis J. Chatterly** ..... Assistant Professor of Mathematics (1962)  
B.S., Brigham Young University, 1955; M.S., University of Utah, 1962; Ph.D., University of Texas, 1972.

- Paul R. Cheesman** ..... Associate Professor of Ancient Scripture (1966)  
B.A., San Diego State College, 1944; MRE, DRE, Brigham Young University, 1965, 1967.
- David Jack Cherrington** ..... Assistant Professor of Organizational Behavior (1973)  
B.S., Brigham Young University, 1966; MBA, DBA, Indiana University, 1971.
- Clark G. Christensen** ..... Assistant Professor of Physics and Astronomy (1972)  
B.S., Brigham Young University, 1966; Ph.D., California Institute of Technology, 1971.
- Dean C. Christensen** ..... Professor of Education (1957)  
B.S., M.S., Utah State University, 1938, 1948; Ed.D., University of Oregon, 1957.
- Edward L. Christensen** ..... Professor of Business Management (1953)  
B.S., M.S., Ph.D., University of Utah, 1938, 1939, 1953.
- James J. Christensen** ..... Professor of Chemical Engineering (1957)  
B.S., M.S., University of Utah, 1953, 1956; Ph.D., Carnegie Institute of Technology, 1957.
- Ross T. Christensen** ..... Professor of Archaeology and Anthropology (1952)  
B.A., M.A., Brigham Young University, 1943, 1947; Ph.D., University of Arizona, 1956.
- Henry N. Christiansen** ..... Professor of Civil Engineering (1965)  
B.S., Utah State University, 1957; M.S., Ph.D., Stanford University, 1958, 1962.
- John R. Christiansen** ..... Professor of Sociology (1957)  
B.S., M.S., Utah State University, 1949, 1952; Ph.D., University of Wisconsin, 1955.
- Bruce B. Clark** ..... Professor of English; Dean of the College of Humanities (1950)  
B.A., University of Utah, 1943; M.A., Brigham Young University, 1948; Ph.D., University of Utah, 1951.
- Dwight P. Clark** ..... Associate Professor of Chemical Engineering (1964)  
B.S., University of Utah, 1960; Ph.D., Oregon State University, 1965.
- H. Clifford Clark** ..... Professor of Elementary Education (1969)  
B.S., Ed.D., Brigham Young University, 1954, 1963; M.A., Los Angeles State College, 1957.
- Hoover W. Clark** ..... Associate Professor of French (1964)  
B.A., M.A., Brigham Young University, 1954, 1958; Ph.D., Syracuse University, 1964.
- J. Reuben Clark III** ..... Professor of French and Classical Languages (1941)  
B.A., University of Utah, 1934.
- James R. Clark** ..... Professor of Ancient Scripture (1938)  
B.A., M.A., Brigham Young University, 1936, 1944; Ed.D., Utah State University, 1958.
- Marden J. Clark** ..... Professor of English (1949)  
B.A., M.A., Brigham Young University, 1948, 1949; Ph.D., University of Washington, 1957.
- Wayne W. Clark** ..... Professor of Economics (1962)  
B.A., Brigham Young University, 1952; Ph.D., Texas A&M University, 1960.
- J. Halvor Clegg** ..... Assistant Professor of Spanish (1972)  
B.A., Brigham Young University, 1964; M.A., Ph.D., University of Texas, 1967, 1969.
- John C. Clegg** ..... Professor of Electrical Engineering (1961)  
B.S., M.S., Ph.D., University of Utah, 1949, 1954, 1957.
- Morris M. Clinger** ..... Professor of Speech (1936)  
B.A., M.A., Brigham Young University, 1932, 1946; Ph.D., University of Minnesota, 1963.
- Coran L. Cluff** ..... Associate Professor of Chemistry (1960)  
B.S., Arizona State University, 1952; M.S., Ph.D., University of Michigan, 1955, 1960.
- Ralph Lee Coates** ..... Professor of Chemical Engineering (1967)  
B.S., Ph.D., University of Utah, 1959, 1962; Registered Professional Engineer, Utah, 1968.
- Lane A. Compton** ..... Assistant Director of Research; Professor of Physical Science Education (1953)  
B.S., M.S., Ed.D., University of Utah, 1943, 1951, 1955.
- Merlin D. Compton** ..... Professor of Spanish (1964)  
B.A., M.A., Brigham Young University, 1952, 1954; Ph.D., University of California at Los Angeles, 1959.



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B.A., Brigham Young University, 1964; M.A., University of Utah, 1965; Ph.D., University of Pittsburgh, 1969.
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B.S., M.S., Brigham Young University, 1954, 1955; Ph.D., University of Illinois, 1962.
- Ivan L. Corbridge** ..... Professor of Agricultural Economics (1952)  
B.A., Utah State University, 1946; M.S., University of Chicago, 1948; Ph.D., Washington State College, 1952.
- Milford C. Cottrell** ..... Associate Professor of Secondary Education (1964)  
B.A., University of Wyoming, 1948; M.S., Ed.D., Brigham Young University, 1956, 1961.
- Richard O. Cowan** ..... Professor of Church History and Doctrine (1961)  
B.A., Occidental College, 1958; M.A., Ph.D., Stanford University, 1959, 1961.
- Soren F. Cox** ..... Professor of English and Linguistics (1955)  
B.A., M.A., Brigham Young University, 1952, 1956; Ph.D., University of Minnesota, 1964.
- Richard H. Cracroft** ..... Associate Professor of English (1963)  
B.A., M.A., University of Utah, 1961, 1963; Ph.D., University of Wisconsin, 1970.
- Marshall R. Craig** ..... Professor of English (1953)  
B.S., Brigham Young University, 1941; M.A., Ph.D., Columbia University, 1947, 1968.
- Wesley W. Craig** ..... Associate Professor of Sociology (1967)  
B.A., Brigham Young University, 1956; Ph.D., Cornell University, 1967.
- John M. Crandall, Jr.** ..... Associate Professor of Special Education (1970)  
B.A., M.A., Arizona State University, 1951, 1957; Ph.D., University of Texas, 1966.
- Vern J. Crandall** ..... Assistant Professor of Computer Science and Statistics (1968)  
B.A., Brigham Young University, 1963; M.S., Kansas State University, 1966; Ph.D., University of Washington, 1972.
- Peter L. Crawley** ..... Professor of Mathematics (1971)  
B.S., Ph.D., California Institute of Technology, 1957, 1961.
- Bert P. Cundick** ..... Professor of Psychology (1962)  
B.A., M.S., University of Utah, 1957, 1959; Ph.D., Ohio State University, 1962.
- Beverly R. Cutler** ..... Associate Professor of Education (1969)  
B.A., University of Utah, 1952; M.S., Brigham Young University, 1963; Ph.D., Stanford University, 1966.
- Delva Daines** ..... Professor of Elementary Education (1955)  
B.S., M.S., Utah State University, 1940, 1947; Ed.D., Washington State University, 1956.
- Robert H. Daines** ..... Associate Professor of Business Management (1959)  
B.S., Utah State University, 1956; MBA, Stanford University, 1959; DBA, Indiana University, 1966.
- Nelson Kent Dalley** ..... Assistant Professor of Chemistry (1969)  
B.S., M.S., Brigham Young University, 1960, 1964; Ph.D., University of Texas at Austin, 1968.
- David Johnson Dalton** ..... Assistant Professor of Music (1963)  
B.M., M.M., Eastman School of Music, 1959, 1961; DMA, Indiana University, 1970.
- Gene W. Dalton** ..... Professor of Organizational Behavior (1972)  
B.S., University of Utah, 1952; M.S., Brigham Young University, 1956; DBA, Harvard Business School, 1962.
- Philip B. Daniels** ..... Professor of Psychology (1961)  
B.S., M.S., Brigham Young University, 1954, 1957; Ph.D., Harvard University, 1962.
- Alexander B. Darais** ..... Associate Professor of Art (1954)  
B.S., Brigham Young University, 1948; MFA, Claremont Graduate School, 1952.
- J. Kenneth Davies** ..... Professor of Economics (1953)  
B.S., Marquette University, 1945; M.S., Brigham Young University, 1950; Ph.D., University of Southern California, 1959.
- D. Evan Davis** ..... Professor of Music (1965)  
B.A., University of California at Los Angeles, 1946; M. Mus., Northwestern University, 1948; Ed.D., University of Oregon, 1953.
- Garold Neil Davis** ..... Professor of German (1973)  
B.A., M.A., Brigham Young University, 1958, 1959; Ph.D., Johns Hopkins University, 1962.
- C. Edwin Dean** ..... Associate Professor of Computer Science (1949)  
B.S., M.S., Brigham Young University, 1948, 1952; M.S., University of Michigan, 1955.

- Daniel L. Decker** ..... Professor of Physics (1958)  
B.S., M.S., Brigham Young University, 1953, 1955; Ph.D., University of Illinois, 1958.
- Arturo DeHoyos** .... Associate Professor of Indian Education (Sociology) (1968)  
B.A., M.A., Brigham Young University, 1952, 1954; Ph.D., Michigan State University, 1961.
- Benjamin F. DeHoyos** ..... Associate Professor of Recreation Education (1961)  
B.S., M.A., Brigham Young University, 1956, 1961; Ph.D., University of Utah, 1969.
- Ronald D. Dennis** ..... Assistant Professor of Spanish and Portuguese (1969)  
B.A., Brigham Young University, 1964; M.A., Ph.D., University of Wisconsin, 1966, 1972.
- William E. Dibble** ..... Professor of Physics (1961)  
B.S., Ph.D., California Institute of Technology, 1954, 1960.
- Dwight R. Dixon** ..... Professor of Physics (1959)  
B.S., Utah State University, 1942; Ph.D., University of California at Berkeley, 1955.
- David M. Donaldson** ..... Professor of Microbiology (1955)  
B.S., M.S., Ph.D., University of Utah, 1950, 1952, 1954.
- Harold Lowe Dowdle** ..... Professor of Spanish and Portuguese (1968)  
B.A., M.A., Brigham Young University, 1948, 1949; Ph.D., Stanford University, 1954.
- Lester N. Downing** ..... Professor of Educational Psychology (1954)  
B.S., M.S., Utah State University, 1947, 1949; Ed.D., Colorado State College of Education, 1951.
- Roy W. Doxey** ..... Professor of Church History and Doctrine; Dean, College of Religious Instruction (1948)  
B.A., M.A., George Washington University, 1938, 1940.
- Willard B. Doxey** ..... Professor of Economics (1956)  
B.S., M.S., University of Utah, 1937, 1947; Ph.D., University of California at Berkeley, 1956.
- J. Duane Dudley** ..... Associate Director, Honors Program; Professor of Physics (1956)  
B.S., Brigham Young University, 1952; M.A., Rice Institute, 1953; Ph.D., University of Utah, 1959.
- James T. Duke** ..... Professor of Sociology (1963)  
B.A., M.A., University of Utah, 1957, 1958; Ph.D., University of California at Los Angeles, 1963.
- James Webb Dunn** ..... Associate Professor of Education (1973)  
B.S., M.S., Ed.D., Brigham Young University, 1950, 1960, 1968.
- S. Olani Durrant** ..... Assistant Professor of Civil Engineering (1970)  
BES, M.S., Brigham Young University, 1962, 1963; Sc.D., New Mexico State University, 1969; Registered Professional Engineer, Utah, 1971.
- Dean S. Dutton** ..... Associate Professor of Economics (1968)  
B.A., University of Utah, 1964; M.A., Ph.D., Michigan State University, 1966, 1968.
- William G. Dyer** ..... Professor of Organizational Behavior (1955)  
B.A., M.A., Brigham Young University, 1950, 1952; Ph.D., University of Wisconsin, 1955.
- Don L. Earl** ..... Professor of Music (1946)  
B.A., M.A., Brigham Young University, 1940, 1947; Ph.D., Indiana University, 1952.
- E. John Eastmond** ..... Professor of Physics (1951)  
B.A., Brigham Young University, 1937; Ph.D., University of California at Berkeley, 1943.
- Richard Grant Ellsworth** ..... Professor of English (1958)  
B.A., M.A., Brigham Young University, 1951, 1952; Ph.D., University of Maryland, 1958.
- J. Lynn England** ..... Assistant Professor of Sociology (1970)  
B.A., M.A., University of Utah, 1965, 1967; Ph.D., University of Pittsburgh, 1971.
- Glenn L. Enke** ..... Professor of Civil Engineering (1962)  
B.S., University of California, 1928; Registered Engineer, California, 1934, Utah, 1947, Ohio, 1964, Wyoming, 1965; Registered Land Surveyor, Utah, 1955.
- Ross S. Esplin** ..... Assistant Professor of English (1961)  
B.A., M.A., Brigham Young University, 1947, 1949; Ph.D., University of Utah, 1970.
- David L. Evans** ..... Associate Professor of English (1954)  
B.A., Idaho State College, 1948; M.A., Ph.D., University of Utah, 1953, 1968.
- William E. Evenson** ..... Assistant Professor of Physics and Astronomy (1970)  
B.S., Brigham Young University, 1965; Ph.D., Iowa State University, 1968.
- Merwin G. Fairbanks** ..... Assistant Professor of Communications (1962)  
B.A., M.A., Brigham Young University, 1941, 1964.

- James L. Farmer** ..... Assistant Professor of Zoology (1969)  
B.S., California Institute of Technology, 1960; Ph.D., Brown University, 1966.
- Dean B. Farnsworth** ..... Professor of English (1953)  
B.A., M.A., University of Utah, 1946, 1947; Ph.D., University of California at Berkeley, 1950.
- Lee W. Farnsworth** ..... Professor of Political Science (1964)  
B.A., M.A., University of California at Berkeley, 1957, 1960; Ph.D., Claremont Graduate School, 1963.
- Raymond B. Farnsworth** ..... Professor of Agronomy (1946)  
B.S., Brigham Young University, 1937; M.S., Massachusetts State College, 1938; Ph.D., Ohio State University, 1941.
- J. Earl Faulkner** ..... Professor of Statistics (1963)  
B.S., Utah State University, 1950; M.S., Kansas State University, 1952; Ph.D., University of Minnesota, 1964.
- Lawrence Fearnley** ..... Professor of Mathematics (1957)  
B.S., London University, 1953; Ph.D., University of Utah, 1959; Ph.D. University of London, 1970.
- Helamond R. P. Ferguson** ..... Assistant Professor of Mathematics (1971)  
A.B., Hamilton College, 1962; M.S., Brigham Young University, 1966; M.S., Ph.D., University of Washington, 1969, 1971.
- D. Allan Firmage** ..... Professor of Engineering (1955)  
B.S., University of Utah, 1940; M.S., Massachusetts Institute of Technology, 1941; Registered Engineer, Florida, 1948, Utah, 1956.
- A. Garth Fisher** ..... Associate Professor of Physical Education (1969)  
B.S., Brigham Young University, 1955; M.A., Sacramento State College, 1966; Ph.D., University of New Mexico, 1969.
- Philip M. Flammer** ..... Associate Professor of Social Science (1973)  
B.S., Utah State University, 1953; M.A., George Washington University, 1958; Ph.D., Yale University, 1963.
- Royce P. Flandro** ..... Associate Professor of University Studies (1953)  
B.S., M.S., University of Utah, 1948, 1950; Ed.D., University of Indiana, 1957.
- Donovan E. Fleming** ..... Professor of Psychology (1971)  
B.S., M.S., Brigham Young University, 1956, 1957; Ph.D., Washington State University, 1962.
- Marvin H. Folsom** ..... Professor of German (1961)  
B.A., M.A., Brigham Young University, 1956, 1957; Ph.D., Cornell University, 1961.
- Glen Ray Foster** ..... Assistant Professor of Economics (1967)  
B.S., Utah State University, 1963; Ph.D., University of Texas, 1970.
- Frank Wayne Fox** ..... Assistant Professor of History (1971)  
B.A., M.A., University of Utah, 1966, 1969; Ph.D., Stanford University, 1973.
- William M. Foxley** ..... Assistant Professor of Music (1969)  
B.M., McCune School of Music, 1954; B.A., Ph.D., Brigham Young University, 1954, 1969; MFA, University of Utah, 1955.
- Rulon S. Francis** ..... Assistant Professor of Physical Education (1963)  
B.S., M.S., Brigham Young University, 1952, 1967; Registered Physical Therapist, University of Southern California, 1954; Ph.D., University of Utah, 1971.
- Joseph C. Free** ..... Professor of Mechanical Engineering (1961)  
B.S., Brigham Young University, 1958; M.S., California Institute of Technology, 1961; Ph.D., Massachusetts Institute of Technology, 1967.
- Herbert H. Frost** ..... Professor of Zoology (1960)  
B.A., M.A., Brigham Young University, 1941, 1947; Ph.D., Cornell University, 1955.
- John P. Fugal** ..... Assistant Professor of Church History and Doctrine (1966)  
B.S., M.S., DRE, Brigham Young University, 1948, 1959, 1967.
- Dean K. Fuhrman** ..... Professor of Civil Engineering (1954)  
B.S., M.S., Utah State University, 1941, 1950; Ph.D., University of Wisconsin, 1952; Registered Professional Engineer, Utah, 1946, Nevada, 1962.
- Darwin Fred Gale** ..... Associate Professor of Educational Psychology (1969)  
A.S., Weber State College, 1957; B.S., M.S., Utah State University, 1958, 1960; Ed.D., Brigham Young University, 1967.
- Andrew L. Gardner** ..... Professor of Physics (1964)  
B.S., Utah State University, 1940; Ph.D., University of California at Berkeley, 1955.
- John H. Gardner** ..... Professor of Physics (1949)  
B.S., Utah State University, 1943; M.A., Ph.D., Harvard University, 1947, 1950.
- Robert Wayne Gardner** ..... Associate Professor of Animal Science (1966)  
B.S., Utah State University, 1958; M.S., Ph.D., Cornell University, 1960, 1962.



- Willard Hale Gardner** ..... Assistant Director, Manager of Computer Research Center; Associate Professor of Computer Science (1963)  
B.S., Utah State University, 1948; M.S., Brigham Young University, 1956.
- Lynn E. Garner** ..... Assistant Professor of Mathematics (1963)  
B.S., Brigham Young University, 1962; M.A., University of Utah, 1964; Ph.D., University of Oregon, 1968.
- LaMar E. Garrard** .... Assistant Professor of Church History and Doctrine (1967)  
B.S., University of Idaho, 1949; M.S., Ph.D., Brigham Young University, 1955, 1968.
- Ray H. Garrison** ..... Associate Professor of Accounting (1966)  
B.S., M.S., Brigham Young University, 1960, 1961; CPA, Colorado, 1962; DBA, Indiana University, 1966.
- Byron W. Gassman** ..... Professor of English (1960)  
B.A., Brigham Young University, 1955; M.A., Ph.D., University of Chicago, 1956, 1960.
- Edward A. Geary** ..... Assistant Professor of English (1968)  
B.A., M.A., Brigham Young University, 1960, 1963; Ph.D., Stanford University, 1971.
- Burton C. Gee** ..... Professor of Mathematics (1960)  
B.S., Brigham Young University, 1951; M.S., Ed.D., Oregon State University, 1958, 1965.
- J. Douglas Gibb** ..... Assistant Professor of Speech and Dramatic Arts (1969)  
B.S., M.A., University of Utah, 1963, 1964; Ph.D., Wayne State University, 1966.
- Rendol L. Gibbons** ..... Associate Professor of Music (1964)  
B.A., M.A., Northern Arizona University, 1947, 1954; Ph.D., University of Colorado, 1969.
- M. Carl Gibson** ..... Professor of Spanish (1949)  
B.A., M.A., Brigham Young University, 1947, 1949; Ph.D., University of Oregon, 1960.
- Gurcharan S. Gill** ..... Professor of Mathematics (1960)  
B.S., Brigham Young University, 1958; M.S., Ph.D., University of Utah, 1960, 1965.
- Joseph M. Glassett** ..... Associate Professor of Chemical Engineering (1966)  
B.S., University of Utah, 1947; M.S., Massachusetts Institute of Technology, 1948; Registered Professional Engineer, 1956.
- Preston R. Gledhill** ..... Professor of Dramatic Arts (1947)  
Degré Supérieur, La Sorbonne, 1938; B.A., Brigham Young University, 1939; M.A., Louisiana State University, 1940; Ph.D., University of Wisconsin, 1951.
- J. Rex Goates** ..... Professor of Chemistry (1947)  
B.S., Brigham Young University, 1942; Ph.D., University of Wisconsin, 1947.
- A. Harold Goodman** ..... Professor of Music (1960)  
B.A., University of Arizona, 1947; M.Mus., Ed.D., University of Southern California, 1951, 1960.
- R. Irwin Goodman** ..... Assistant Professor of Educational Psychology (1969)  
B.A., University of California at Los Angeles, 1955; M.S., Ed.D., Indiana University, 1961, 1969.
- William Dale Goodson** ..... Assistant Professor of Career Orientation (1965)  
B.S., Ricks College, 1952; M.S., Ed.D., Brigham Young University, 1956, 1969.
- Frederick R. Gowans** ..... Assistant Professor of Indian Education (1972)  
B.S., M.S., Ph.D., Brigham Young University, 1960, 1963, 1972.
- Brooke Grant** ..... Assistant Professor of Accounting (1971)  
B.A., J.D., Stanford University, 1958, 1960; CPA, California, 1969.
- John A. Green** ..... Professor of French (1964)  
B.A., M.A., Brigham Young University, 1954, 1955; Ph.D., University of Washington, 1960.
- Jon Dean Green** ..... Assistant Professor of Humanities and Comparative Literature (1970)  
B.A., M.A., Brigham Young University, 1966, 1968; Ph.D., Syracuse University, 1972.
- Alan H. Grey** ..... Associate Professor of Geography (1964)  
B.A., Brigham Young University, 1959; M.A., Ph.D., University of Wisconsin, 1960, 1963.
- Earl Louis Grossen** ..... Assistant Professor of Secondary Education (1971)  
B.S., University of Utah, 1958; Special Diplomas, University of Michigan and American University at Beirut, 1962, 1964; M.A. equivalent, University of Washington, 1967; Ph.D., University of Utah, 1971.
- Jerry Dee Grover** ..... Associate Professor of Industrial Education (1968)  
B.S., M.E., Utah State University, 1956, 1961; Ed.D., Brigham Young University, 1968.
- Stewart L. Grow** ..... Distinguished Professor of History and Political Science (1947)  
B.S., M.S., Brigham Young University, 1935, 1948; Ph.D., University of Utah, 1954.

- Clark J. Gubler** ..... Professor of Chemistry (1958)  
B.A., Brigham Young University, 1939; M.A., Utah State University, 1941; Ph.D., University of California, 1945.
- Donworth V. Gubler** ..... Associate Professor of Russian and German (1949)  
B.A., M.A., Ph.D., Brigham Young University, 1948, 1949, 1971.
- Richard L. Gunn** ..... Professor of Art and Education (1948)  
B.S., M.S., Brigham Young University, 1947, 1950; Ed.D., Stanford University, 1955; Banff School of Fine Arts.
- Brent Que Hafen** ..... Associate Professor of Health Science (1969)  
B.S., M.S., University of Utah, 1963, 1965; Ph.D., Southern Illinois University, 1969.
- William J. Hafen** ..... Professor of Recreation Education (1954)  
B.S., Brigham Young University, 1950; M.A., Washington State University, 1953; D.R., Indiana University, 1960; Ed.D., University of Utah, 1968.
- H. Tracy Hall** ..... Distinguished Professor of Chemistry (1955)  
B.S., M.S., Ph.D., University of Utah, 1942, 1943, 1948.
- John R. Halliday** ..... Professor of Music (1936)  
B.A., M.A., Brigham Young University, 1935, 1936; Ph.D., Eastman School of Music, University of Rochester, 1941.
- W. Kenneth Hamblin** ..... Professor of Geology (1963)  
B.A., M.S., Brigham Young University, 1953, 1954; Ph.D., University of Michigan, 1958.
- Ruth K. Hammond** ..... Assistant Professor of Educational Psychology (1966)  
B.S., M.S., University of Utah, 1950, 1955; Ph.D., Purdue University, 1971.
- Richard W. Hanks** ..... Professor of Chemical Engineering (1963)  
B.E., Yale University, 1957; Ph.D., University of Utah, 1960; Registered Professional Engineer, Utah, 1968.
- Gary D. Hansen** ..... Associate Professor of Family Economics and Home Management (1971)  
B.S., Utah State University, 1958; M.A., University of Minnesota, 1960; Ph.D., Oregon State University, 1969.
- Harold I. Hansen** ..... Professor of Dramatic Arts (1952)  
B.S., Utah State University, 1937; M.A., Ph.D., State University of Iowa, 1940, 1949.
- H. Kimball Hansen** ..... Associate Professor of Physics and Astronomy (1963)  
B.S., M.S., Brigham Young University, 1957, 1959; Ph.D., University of California at Berkeley, 1966.
- Lee D. Hansen** ..... Associate Professor of Chemistry (1972)  
B.S., Ph.D., Brigham Young University, 1962, 1965.
- Richard A. Hansen** ..... Associate Professor of Mathematics (1967)  
B.S., M.S., Ph.D., University of Utah, 1959, 1961, 1965.
- Terrence L. Hansen** ..... Professor of Spanish; President of the Language Training Mission (1960)  
B.A., University of Utah, 1946; M.A., Ph.D., Stanford University, 1948, 1950.
- John W. Hardy** ..... Assistant Professor of Accounting (1969)  
B.A., Brigham Young University, 1964; MBA, Indiana University, 1966; Ph.D., University of Texas at Austin, 1972.
- Kenneth R. Hardy** ..... Professor of Psychology (1954)  
B.A., M.A., University of Utah, 1948, 1949; Ph.D., University of Michigan, 1954.
- LeRoy Francis Harlow** ..... Associate Professor of Organization and Management (1967)  
B.S., Iowa State University, 1938; M.A., University of Minnesota, 1942.
- Frank W. Harmon** ..... Professor of Elementary Education (1963)  
B.S., M.S., University of Utah, 1952, 1956; Ed.D., Columbia University, 1964.
- Callis R. Harms** ..... Associate Professor of Elementary Administration (1960)  
B.S., M.Ed., Brigham Young University, 1952, 1956; Ed.D., Arizona State University, 1961.
- Edwin O. Haraldsen** ..... Associate Professor of Communications (1969)  
B.S., M.S., University of Utah, 1943, 1956; Ph.D., Iowa State University, 1967.
- Kimball Taylor Harper** ..... Professor of Botany (1973)  
B.S., M.S., Brigham Young University, 1958, 1960; Ph.D., University of Wisconsin, 1963.
- James M. Harris** ..... Professor of Educational Psychology (1955)  
B.S., M.S., Utah State University, 1952, 1953; Ph.D., Cornell University, 1955.
- James Roy Harris** ..... Assistant Professor of Ancient Scripture (1966)  
B.S., M.A., Ed.D., Brigham Young University, 1952, 1958, 1965.

- John B. Harris** ..... Associate Professor of English (1958)  
B.A., M.A., Brigham Young University, 1955, 1956; Ph.D., Wayne State University, 1965.
- Bertrand F. Harrison** ..... Professor of Botany (1929)  
B.S., M.S., Brigham Young University, 1930, 1931; Ph.D., University of Chicago, 1937.
- B. Kent Harrison** ..... Professor of Physics (1964)  
B.S., Brigham Young University, 1955; M.A., Ph.D., Princeton University, 1958, 1959.
- Betty D. Harrison** ..... Associate Professor of Educational Psychology (1961)  
B.S., M.S., Ph.D., Brigham Young University, 1959, 1960, 1965.
- Grant Von Harrison** ..... Associate Professor of Educational Psychology (1969)  
B.A., Brigham Young University, 1962; M.A., Adams State College, 1965; Ed.D., University of California at Los Angeles, 1969.
- Joyce M. Harrison** ..... Assistant Professor of Physical Education (1969)  
B.A., M.A., California State College at Long Beach, 1964, 1966; Ed.D., Brigham Young University, 1973.
- Edward L. Hart** ..... Professor of English (1952)  
B.S., University of Utah, 1939; M.A., University of Michigan, 1941; D. Phil., Oxford University (England), 1950.
- Leon R. Hartshorn** .... Associate Professor of Church History and Doctrine (1965)  
B.S., M.S., Brigham Young University, 1956, 1959; Ed.D., Stanford University, 1965.
- Milton F. Hartvigen** ..... Professor of Physical Education; Dean of the College of Physical Education (1956)  
B.S., M.Ed., Utah State University, 1930, 1939; Ed.D., University of California at Los Angeles, 1956.
- Dorian Maurice Hatch** ..... Assistant Professor of Physics (1968)  
B.S., Utah State University, 1962; M.A., Ph.D., State University of New York at Stony Brook, 1965, 1968.
- Richard T. Hawkins** ..... Professor of Chemistry (1959)  
B.A., Brigham Young University, 1951; Ph.D., University of Illinois, 1959.
- Billy Ray Hays** ..... Assistant Professor of Computer Science (1970)  
B.S., East Texas State University, 1963; M.S., University of Iowa, 1967; Ph.D., Northwestern University, 1970.
- Gerald Lynn Hayward** ..... Assistant Professor of Zoology (1970)  
B.S., Brigham Young University, 1963; M.D., University of Utah, 1967.
- Richard Allyn Heaps** ..... Associate Director of the Personal Development Center; Assistant Professor of Educational Psychology (1970)  
B.S., Brigham Young University, 1966; M.A., Ph.D., University of Utah, 1968, 1970.
- Alma Heaton** ..... Associate Professor of Recreation Education (1953)  
B.S., M.S., Utah State University, 1950, 1951.
- Howard S. Heaton** ..... Professor of Mechanical Engineering (1963)  
B.S., University of Southern California, 1957; M.S., Ph.D., Stanford University, 1959, 1963.
- Israel C. Heaton** ..... Professor of Recreation Education (1956)  
B.S., M.S., Utah State University, 1940, 1941; Re.D., University of Indiana, 1955.
- Richard A. Heckmann** ..... Associate Professor of Zoology (1972)  
B.S., M.S., Utah State University, 1954, 1958; Ph.D., Montana State University, 1970.
- Steven Warner Heiner** ..... Associate Professor of Health Science (1969)  
B.S., M.S., Ed.D., University of Utah, 1955, 1962, 1969.
- Leland J. Hendrix** ..... Associate Professor of Educational Psychology (1967)  
B.S., M.A., Ph.D., Brigham Young University, 1960, 1966, 1967.
- Richard Wilford Heninger** ..... Professor of Zoology (1966)  
B.S., Brigham Young University, 1957; M.S., Ph.D., Oklahoma State University, 1959, 1961.
- Charles A. Henson** ..... Associate Professor of Dramatic Arts (1958)  
B.S., M.S., Brigham Young University, 1957, 1959.
- Wayne R. Herlin** ..... Associate Professor of University Studies (1964)  
B.A., University of Utah, 1953; M.A., Stanford University, 1956; Ph.D., University of Utah, 1963.
- Wilford M. Hess** ..... Professor of Botany (1962)  
B.S., Brigham Young University, 1957; M.S., Ph.D., Oregon State University, 1960, 1962.
- Harold R. Hickman** ..... Assistant Professor of Communications (1970)  
B.S., MFA, University of Utah, 1957, 1960; Ph.D., Brigham Young University, 1970.



- Martin B. Hickman** ..... Professor of Political Science; Dean of the College of Social Sciences (1967)  
B.S., M.A., Ph.D., University of Utah, 1951, 1952, 1954; MPA, Harvard University, 1960.
- Kenneth L. Higbee** ..... Assistant Professor of Psychology (1970)  
B.S., M.S., Brigham Young University, 1965, 1966; Ph.D., Purdue University, 1970.
- John C. Higgins** ..... Associate Professor of Mathematics (1961)  
B.A., M.A., Brigham Young University, 1958, 1960; Ph.D., University of California at Davis, 1966.
- Armin J. Hill** ..... Professor of Physics; Dean of the College of Engineering Sciences and Technology (1957)  
B.S., M.S., Montana State College, 1932, 1938; M.S., Ph.D., California Institute of Technology, 1949, 1950.
- John M. Hill** ..... Associate Professor of Food Science and Nutrition (1971)  
B.A., Ph.D., Rice University, 1961, 1965; Postdoctorate, University of California at Los Angeles, Stanford University, 1966, 1967.
- Marvin S. Hill** ..... Assistant Professor of History (1966)  
B.A., M.A., Brigham Young University, 1955; Ph.D., University of Chicago, 1968.
- Max W. Hill** ..... Professor of Physics (1958)  
B.A., Brigham Young University, 1954; Ph.D., University of California at Berkeley, 1959.
- Kenneth L. Hillam** ..... Professor of Mathematics (1957)  
B.S., M.S., University of Utah, 1949, 1956; Ph.D., University of Colorado, 1962.
- Ray C. Hillam** ..... Professor of Political Science (1960)  
B.A., University of Utah, 1955; M.A., George Washington University, 1958; Ph.D., American University, 1964.
- H. Gill Hilton** ..... Professor of Statistics (1962)  
B.S., Brigham Young University, 1957; M.S., Ph.D., North Carolina State College, 1960, 1962.
- Edwin C. Hinckley** ..... Professor of Industrial Education (1963)  
B.S., M.S., Oregon State University, 1950, 1956; Ed.D., Colorado State College, 1963.
- Lehi F. Hintze** ..... Professor of Geology (1955)  
B.A., University of Utah, 1941; M.A., Ph.D., Columbia University, 1949, 1951.
- Leona Holbrook** ..... Professor of Physical Education (1937)  
B.S., University of Utah, 1929; M.A., Ed.D., Columbia University, 1935, 1950.
- Lyal E. Holder** ..... Professor of Education (1966)  
B.S., Brigham Young University, 1951; M.A., Ed.D., Colorado State College, 1958, 1962.
- Blair R. Holmes** ..... Assistant Professor of History (1971)  
B.A., Brigham Young University, 1966; M.A., Ph.D., University of Colorado, 1968, 1972.
- Ivin L. Holt** ..... Assistant Professor of Technology (1963)  
B.S., Brigham Young University, 1957; M. Ed., Pennsylvania State University, 1958; Ed.D., Arizona State University, 1972.
- Keith H. Hoopes** ..... Professor of Animal Science (1957)  
B.S., Utah State University, 1957; DVM, State College of Washington, 1956.
- Margaret H. Hoopes** ..... Assistant Professor of Child Development and Family Relationships (1970)  
B.S., Ricks College, 1953; M.S., Brigham Young University, 1962; Ph.D., University of Minnesota, 1969.
- A. Burt Horsley** ..... Professor of Church History and Doctrine (1956)  
B.A., M.A., Brigham Young University, 1945, 1954; Dd.P., Münster University, 1955; Ph.D., Westphalian Welhelms Universität, Münster, Germany, 1956.
- M. Duane Horton** ..... Professor of Chemical Engineering (1963)  
B.S., Ph.D., University of Utah, 1957, 1961.
- Robert J. Howell** ..... Professor of Psychology (1952)  
B.A., M.A., Ph.D., University of Utah, 1948, 1949, 1951.
- Ernest D. Hubbard** ..... Associate Professor of Accounting (1963)  
B.S., Utah State University, 1952; MBA, University of Utah, 1959; DBA, University of Washington, 1967.
- Lloyd Eugene Hudman** ..... Assistant Professor of Geography (1970)  
B.S., University of Utah, 1964; M.S., University of Kansas, 1968; Ph.D., University of Kansas, 1970.
- DeVerl S. Humpherys** ..... Professor of Electrical Engineering (1964)  
B.S., Brigham Young University, 1955; M.S., University of Utah, 1957; Ph.D., University of Illinois, 1963.

- O. Glade Hunsaker** ..... Assistant Professor of English (1964)  
B.S., Utah State University, 1962; M.A., Brigham Young University, 1964; Ph.D., University of Illinois, 1970.
- Donald R. Hurley** ..... Assistant Professor of Health Science (1971)  
B.S., M.S., Brigham Young University, 1963, 1964; Ph.D., Southern Illinois University, 1971.
- Norman F. Hyatt** ..... Associate Professor of Education (1970)  
B.S., M.S., Brigham Young University, 1948, 1949; Ed.D., University of Oregon, 1964.
- Paul V. Hyer** ..... Professor of History (1957)  
B.A., Brigham Young University, 1951; M.A., Ph.D., University of California, 1953, 1960.
- Carlton A. Infanger** ..... Associate Professor of Agricultural Economics (1965)  
B.S., M.S., Ph.D., Montana State College, 1955, 1956, 1964.
- Reed M. Izatt** ..... Professor of Chemistry (1956)  
B.S., Utah State University, 1951; Ph.D., Pennsylvania State University, 1954.
- Richard H. Jackson** ..... Assistant Professor of Geography (1969)  
B.S., M.S., Brigham Young University, 1965, 1966; Ph.D., Clark University, 1970.
- Thomas Wendell Jackson** ..... Assistant Professor of Spanish and Portuguese (1968)  
B.A., Brigham Young University, 1956; Ph.D., Ohio State University, 1968.
- Briant S. Jacobs** ..... Professor of English (1946)  
B.A., Brigham Young University, 1939; Ph.D., State University of Iowa, 1944.
- Phyllis C. Jacobson** ..... Associate Professor of Physical Education for Women (1957)  
B.S., M.S., Utah State University, 1953, 1954; Ph.D., University of Utah, 1971.
- M. Wells Jakeman** ..... Professor of Archaeology and Anthropology (1946)  
B.A., University of Utah, 1931; M.A., University of Southern California, 1932; Ph.D., University of California, 1938.
- Ronald D. Jamison** ..... Professor of Mathematics (1963)  
B.S., Brigham Young University, 1957; Ph.D., University of Utah, 1965.
- Boyd O. Jarman** ..... Professor of Physical Education (1969)  
B.S., Brigham Young University, 1954; M.S., Ed.D., University of Oregon, 1959, 1965.
- Donald Karl Jarvis** ..... Assistant Professor of Russian (1970)  
B.A., Brigham Young University, 1964; Ph.D., Ohio State University, 1970.
- August W. Jaussi** ..... Professor of Zoology (1962)  
B.S., University of Idaho, 1953; M.S., Brigham Young University, 1955; Ph.D., Oklahoma State University, 1960.
- Duane E. Jeffery** ..... Assistant Professor of Zoology (1969)  
B.S., M.S., Utah State University, 1962, 1963; M.A., Ph.D., University of California at Berkeley, 1966, 1972.
- Terry Jenkins** ..... Counselor in Personal Development Center; Assistant Professor of Psychology (1970)  
B.S., Brigham Young University, 1957; M.S., M.A., Southern Illinois University, 1958, 1959; Ph.D., University of Utah, 1966.
- Clayne R. Jensen** ..... Professor of Physical Education and Recreation Education; Assistant Dean, College of Physical Education (1964)  
B.S., M.S., University of Utah, 1952, 1956; PED, Indiana University, 1963.
- De Lamar Jensen** ..... Professor of History (1957)  
B.A., Brigham Young University, 1952; M.A., Ph.D., Columbia University, 1953, 1957.
- Don C. Jensen** ..... Assistant Professor of French (1963)  
B.A., M.A., Brigham Young University, 1960, 1963.
- Gary L. Jensen** ..... Associate Professor of Physics (1966)  
B.S., Utah State University, 1958; M.S., Ph.D., University of Michigan, 1960, 1964.
- Larry C. Jensen** ..... Associate Professor of Psychology (1965)  
B.S., M.S., Brigham Young University, 1960, 1961; Ph.D., Michigan State University, 1966.
- Marcus M. Jensen** ..... Associate Professor of Microbiology (1969)  
B.S., M.S., Utah State University, 1952, 1954; Ph.D., University of California at Los Angeles, 1961.
- Vern H. Jensen** ..... Professor of Educational Psychology; Counselor, Personal Development Center (1949)  
B.S., M.S., Brigham Young University, 1948, 1950; Ed.D., University of Colorado, 1957.



- Franz M. Johansen** ..... Associate Professor of Art (1956)  
B.A., M.A., Brigham Young University, 1955, 1960; Illinois Institute of Technology, California School of Arts and Crafts, Academie de la Grand Chaumiere.
- Eldred A. Johnson** ..... Professor of Accounting (1955)  
B.A., M.A., Brigham Young University, 1949, 1950; CPA, State of California, 1952; Ph.D., University of Utah, 1968.
- F. Brent Johnson** ..... Assistant Professor of Microbiology (1972)  
B.S., M.S., Ph.D., Brigham Young University, 1966, 1967, 1970.
- H. Thayne Johnson** ..... Director of the Graduate Department of Library and Information Sciences; Associate Professor of Library and Information Sciences (1965)  
B.A., M.A., Brigham Young University, 1950, 1952; M.S., University of Southern California, 1959.
- John Hal Johnson** ..... Associate Professor of Food Science and Nutrition (1969)  
B.S., M.S., Brigham Young University, 1955, 1957; Ph.D., Ohio State University, 1963.
- LaVon C. Johnson** ..... Associate Professor of Physical Education (1969)  
B.A., Brigham Young University, 1958; M.A., Ph.D., University of Utah, 1959, 1962.
- Lynn E. Johnson** ..... Assistant Professor of Psychology (1961)  
B.A., Brigham Young University, 1958; M.A., Ph.D., University of Utah, 1959, 1962.
- Richard W. Johnson** ..... Assistant Professor of Educational Psychology; Counselor in Personal Development Center (1968)  
A.S., Weber State College, 1959; B.S., Utah State University, 1960; M.S., University of Wisconsin, 1964; Ph.D., Brigham Young University, 1968.
- N. Paul Johnston** ..... Assistant Professor of Animal Science (1971)  
B.A., Brigham Young University, 1966; M.S., Ph.D., Oregon State University, 1967, 1971; MBA, University of Utah, 1969.
- Douglas E. Jones** ..... Associate Professor of Physics (1964)  
B.S., M.S., Ph.D., Brigham Young University, 1957, 1959, 1965.
- J. Richard Jones** ..... Associate Professor of Physical Education for Men (1961)  
B.S., M.S., Brigham Young University, 1951, 1955; Ed.D., Colorado State College, 1967.
- Kenneth O. Jones** ..... Assistant Professor of Speech and Dramatic Arts (1970)  
B.A., University of Utah, 1967; M.S., Utah State University, 1968; Ph.D., University of Oklahoma, 1970.
- Rowen C. Jones** ..... Assistant Professor of Child Development and Family Relationships (1971)  
B.S., Brigham Young University, 1967; M.Ed., Ph.D., University of Oregon, 1969, 1971.
- Jens J. Jonsson** ..... Manager, Engineering Analysis Center; Professor of Electrical Engineering (1953)  
BSGE, BSEE, University of Utah, 1944, 1947; MSEE, Ph.D., Purdue University, 1948, 1951.
- Clive D. Jorgensen** ..... Associate Professor of Zoology (1963)  
B.S., M.S., Brigham Young University, 1954, 1957; Ph.D., Oregon State University, 1964.
- Eleanor Jorgensen** ..... Associate Professor of Clothing and Textiles (1949)  
B.S., Brigham Young University, 1946; M.S., Kansas State College, 1954; Ph.D., Texas Women's University, 1965.
- Kenneth W. Karren** ..... Professor of Civil Engineering (1965)  
B.S., M.S., University of Utah, 1953, 1961; Ph.D., Cornell University, 1965; Registered Engineer, Utah, 1959.
- Richard S. Kay** ..... Assistant Professor of Educational Psychology (1972)  
B.S., M.S., University of Utah, 1965, 1969; Ph.D., Purdue University, 1972.
- Alan F. Keele** ..... Assistant Professor of German (1971)  
B.A., Brigham Young University, 1967; M.A., Ph.D., Princeton University, 1970, 1971.
- Joseph J. Keeler** ..... Associate Professor of Music; University Organist (1935)  
B.S., M.A., Brigham Young University, 1940, 1950.
- Hans-Wilhelm Kelling** ..... Professor of German (1962)  
Abitur, Germany, 1952; B.A., Brigham Young University, 1958; M.A., Ph.D., Stanford University, 1960, 1967.
- Burton C. Kelly** ..... Professor of Educational Psychology; Associate Director for Counseling Functions (1962)  
B.S., Idaho State College, 1952; M.S., Brigham Young University, 1955; Ph.D., University of Chicago, 1966.
- M. Douglas Kimball** ..... Assistant Professor of French (1967)  
B.A., M.A., University of Utah, 1953, 1964; Ph.D., Brigham Young University, 1970.

- Arthur Henry King** ..... Professor of English (1971)  
B.A., M.A., Cambridge University, 1931, 1942; F.D., Lunn University (Sweden), 1941.
- Hattie M. Knight** ..... Associate Professor of Library and Information Sciences (1941)  
B.S., Brigham Young University, 1941; B.S., University of Denver, 1943; M.S., George Peabody College for Teachers, 1951.
- Lennis M. Knight** ..... Professor of Accounting and Public Administration (1971)  
ASC, Stevens Henager College, 1956; B.A., M.Acc., Brigham Young University, 1962, 1964; CPA, Utah, 1964; Ph.D., Michigan State University, 1966.
- Elmer M. Knowles** ..... Professor of Child Development and Family Relationships (1962)  
B.S., M.S., Utah State University, 1949, 1950; Ph.D., Cornell University, 1952.
- Roland H. Koller II** ..... Assistant Professor of Economics (1969)  
B.S., University of Utah, 1962; M.A., Ph.D., University of Wisconsin, 1968, 1969.
- Phillip R. Kunz** ..... Associate Professor of Sociology (1968)  
B.S., M.S., Brigham Young University, 1961, 1962; Ph.D., University of Michigan, 1967.
- Robert William Laird** ..... Associate Professor of Elementary Education (1973)  
B.S., M.S., Brigham Young University, 1951, 1962; Ed.D., Utah State University, 1971.
- L. Gary Lambert** ..... Assistant Professor of French (1969)  
B.A., University of California at Berkeley, 1963; M.A., University of California at Santa Barbara, 1965; Ph.D., Rice University, 1969.
- Michael J. Lambert** ..... Assistant Professor of Psychology (1971)  
B.S., M.S., Ph.D., University of Utah, 1967, 1968, 1971.
- Neal E. Lambert** ..... Associate Professor of English (1966)  
B.A., Ph.D., University of Utah, 1961, 1966.
- William R. Lambert** ..... Associate Professor of Business Management (1962)  
B.S., University of Utah, 1953; MBA, Harvard Graduate School, 1962; DBA, Indiana University, 1968.
- Jack Wayne Lamoreaux** ..... Assistant Professor of Mathematics (1968)  
B.S., Brigham Young University, 1960; M.S., Ph.D., University of Utah, 1964, 1967.
- Don H. Larsen** ..... Professor of Microbiology (1952)  
B.S., Brigham Young University, 1940; M.A., University of Nebraska, 1942; Ph.D., University of Utah, 1950.
- Jean Larsen** ..... Assistant Professor of Child Development and Family Relationships (1960)  
B.S., M.S., Brigham Young University, 1953, 1960; Ph.D., University of Utah, 1972.
- Kenneth M. Larsen** ..... Associate Professor of Mathematics (1960)  
B.A., University of Utah, 1950; M.A., Brigham Young University, 1956; Ph.D., University of California at Los Angeles, 1964.
- Vernon W. Larsen** ..... Professor of Sociology (1952)  
B.A., M.A., Brigham Young University, 1949, 1950; Ph.D., Cornell University, 1957.
- Clinton F. Larson** ..... Professor of English (1947)  
B.A., M.A., University of Utah, 1943, 1947; Ph.D., University of Denver, 1956.
- E. Gerald Larson** ..... Associate Professor of Physics (1964)  
B.S., M.S., Ph.D., Massachusetts Institute of Technology, 1957, 1959, 1964.
- W. Derby Laws** ..... Professor of Agronomy (1960)  
B.S., Brigham Young University, 1939; M.S., Utah State University, 1941; Ph.D., Ohio State University, 1944.
- Harold R. Laycock** ..... Professor of Music (1949)  
B.A., M.A., Brigham Young University, 1937, 1947; DMA, University of Southern California, 1961.
- Ralph G. Laycock** ..... Professor of Music (1953)  
B.A., Brigham Young University, 1941; M.S., Juilliard School of Music, N.Y.C., 1948; DMA, University of Southern California, 1970.
- Robert L. Layton** ..... Professor of Geography (1954)  
B.S., M.S., University of Utah, 1951, 1952; Ph.D., University of Syracuse, 1962.
- Curtis E. Ledbetter** ..... Assistant Professor of Ancient Scripture (1972)  
B.A., Southwestern University, 1951; B.D., Perkins School of Theology, Southern Methodist University, 1954; M.A., St. Mary's University, 1966; Ed.D., Brigham Young University, 1972.
- Harold W. Lee** ..... Professor of French (1937)  
B.A., M.A., Brigham Young University, 1938, 1940; Ph.D., Stanford University, 1946.
- Terry Nels Lee** ..... Assistant Professor of Business Management (1970)  
B.S., University of Utah, 1963; MBA, Brigham Young University, 1966.

- Farrell Walter Lewis** ..... Assistant Professor of Child Development and Family Relationships (1972)  
B.S., M.A., Ph.D., Brigham Young University, 1966, 1968, 1971.
- John T. Longhurst** ..... Assistant Professor of Music (1969)  
B.M., University of Utah, 1964; M.M., University of Utah, 1966; DMA, University of Rochester, 1970.
- Ferril A. Losee** ..... Professor of Electrical Engineering (1965)  
B.S., University of Utah, 1953; M.S., University of Southern California, 1957.
- Gordon M. Low** ..... Professor of Speech (1964)  
B.A., M.S., University of Utah, 1949, 1950; Ph.D., University of Minnesota, 1955.
- Daniel H. Ludlow** ..... Professor of Ancient Scripture (1955)  
B.S., Utah State University, 1946; M.S., Indiana University, 1953; Ed.D., Columbia University, 1955.
- Victor L. Ludlow** ..... Assistant Professor of Ancient Scripture (1972)  
B.A., Brigham Young University, 1968.
- Melvin J. Luthy** ..... Assistant Professor of English (1971)  
B.S., Utah State University, 1962; Ph.D., Indiana University, 1967.
- Thomas Edgar Lyon, Jr.** ..... Associate Professor of Spanish (1972)  
B.A., University of Utah, 1963; Ph.D., University of California at Los Angeles, 1967.
- Eldon G. Lytle** ..... Assistant Professor of Linguistics (1968)  
B.A., M.A., Brigham Young University, 1961, 1962; Ph.D., University of Illinois, 1971.
- LeRay L. McAllister** ..... Associate Professor of Accounting (1963)  
B.A., Brigham Young University, 1957; M.S., DBA, Arizona State University, 1960, 1971; CPA, Utah, 1962.
- Ross "J" McArthur** ..... Professor of Technology (1956)  
B.S., M.S., Utah State University, 1949, 1953; Ed.D., University of Missouri, 1955.
- James McDonald** ..... Assistant Professor of Economics (1972)  
B.S., M.S., Utah State University, 1964, 1967; Ph.D., Purdue University, 1970.
- Carl M. McGown** ..... Assistant Professor of Physical Education (1972)  
B.S., M.S., Brigham Young University, 1963, 1964; Ph.D., University of Oregon, 1971.
- William E. McKell** ..... Associate Professor of Industrial Education (1970)  
B.S., Utah State University, 1948; M.E., Texas A&M, 1951; Ed.D., Utah State University, 1967.
- J. Glen McKellar** ..... Associate Professor of English (1964)  
B.A., M.A., Brigham Young University, 1960, 1962; Ph.D., University of Colorado, 1968.
- John E. McKendrick** ..... Associate Professor of English (1953)  
B.A., M.A., University of Utah, 1942, 1949.
- Gary Frances McKinnon** ..... Associate Professor of Business Management (1969)  
B.S., MBA, University of Utah, 1962, 1963; Ph.D., University of Texas, 1968.
- Delbert H. McNamara** ..... Professor of Physics (1955)  
B.S., Ph.D., University of California at Berkeley, 1947, 1950.
- Melvin P. Mabey** ..... Professor of History and Political Science (1955)  
B.S., M.A., Brigham Young University, 1947, 1953; D. Phil., Oxford University (England), 1955.
- Thomas W. Mackay** ..... Assistant Professor of Classical Languages (1964)  
B.A., M.A., Brigham Young University, 1963, 1966; Ph.D., Stanford University, 1972.
- Harold S. Madsen** ..... Associate Professor of English as a Second Language (1970)  
B.A., M.A., University of Utah, 1953, 1960; Ph.D., University of Colorado, 1965.
- Truman G. Madsen** ..... Professor of Philosophy (1957)  
B.S., M.S., University of Utah, 1951, 1952; A.M., Ph.D., Harvard University, 1957, 1960.
- Francis R. Magleby** ..... Associate Professor of Art (1959)  
B.S., M.S., Brigham Young University, 1950, 1951.
- Nolan F. Mangelson** ..... Assistant Professor of Chemistry (1969)  
B.S., Utah State University, 1961; M.S., Brigham Young University, 1963; Ph.D., University of California at Berkeley, 1967.
- John H. Mangum** ..... Associate Professor of Chemistry (1963)  
B.S., M.S., Brigham Young University, 1957, 1959; Ph.D., University of Washington, 1963.
- Robert P. Manookin** ..... Associate Professor of Music (1959)  
B.A., Brigham Young University, 1955; M.Mus., University of Illinois, 1959; Ph.D., University of Utah, 1967.



- Maurice P. Marchant** ..... Associate Professor of Library and Information Sciences (1969)  
B.A., M.S., University of Utah, 1949, 1953; MLS, M.A., Ph.D., University of Michigan, 1966, 1968, 1970.
- H. Carleton Marlow** ..... Associate Professor of History (1964)  
B.S., M.S., Brigham Young University, 1958, 1959; Ph.D., University of Oklahoma, 1966.
- Donald R. Marshall** ..... Assistant Professor of Humanities (1971)  
B.A., M.A., Brigham Young University, 1960, 1965; Ph.D., University of Connecticut, 1970.
- Grant W. Mason** ..... Assistant Professor of Physics and Astronomy (1970)  
B.A., Brigham Young University, 1961; Ph.D., University of Utah, 1969.
- James A. Mason** ..... Professor of Music (1962)  
B.A., M.A., Brigham Young University, 1955, 1957; Ed.D., Arizona State University, 1970.
- Ray T. Matheny** ..... Associate Professor of Anthropology and Archaeology (1964)  
B.A., M.A., Brigham Young University, 1960, 1962; Ph.D., University of Oregon, 1968.
- Thomas James Mathiesen** ..... Assistant Professor of Music (1972)  
B.M., Willamette University, 1968; M.M., DMA, University of Southern California, 1970, 1971.
- Robert J. Matthews** ..... Assistant Professor of Ancient Scripture (1971)  
B.S., M.S., Ph.D., Brigham Young University, 1955, 1960, 1968.
- D. Eugene Mead** ..... Associate Professor of Child Development and Family Relationships (1967)  
B.A., University of Oregon, 1956; M.A., San Jose State College, 1963; Ed.D., University of Oregon, 1967.
- J. Keith Melville** ..... Professor of Political Science (1957)  
B.A., University of Utah, 1947; M.A., University of California, 1956; Ph.D., University of Utah, 1959.
- John J. Merrill** ..... Professor of Physics and Astronomy (1971)  
B.S., M.S., Ph.D., California Institute of Technology, 1955, 1956, 1960.
- M. David Merrill** ..... Professor of Educational Psychology (1966)  
B.A., Brigham Young University, 1961; M.A., Ph.D., University of Illinois, 1964.
- LaVere B. Merritt** ..... Assistant Professor of Civil Engineering Science (1970)  
BSCE, MSCE, University of Utah, 1963, 1966; Ph.D., University of Washington, 1970; Registered Engineer, Washington, 1970, Utah, 1972.
- Charles L. Metten** ..... Associate Director, Honors Program; Professor of Dramatic Arts (1962)  
B.A., M.A., University of California at Los Angeles, 1951, 1952; Ph.D., State University of Iowa, 1960.
- Louis C. Midgley** ..... Professor of Political Science (1963)  
B.S., M.S., University of Utah, 1954, 1957; Ph.D., Brown University, 1964.
- Wade E. Miller** ..... Associate Professor of Zoology, Geology (1971)  
A.A., El Camino College, 1957; B.S., Brigham Young University, 1960; M.S., University of Arizona, 1963; Ph.D., University of California at Berkeley, 1968.
- Gordon E. Mills** ..... Assistant Professor of Communications (1971)  
B.A., M.A., Brigham Young University, 1966, 1967; Ph.D., Pennsylvania State University, 1970.
- Gayle F. Miner** ..... Associate Professor of Electrical Engineering (1960)  
B.S., M.S., University of Utah, 1959, 1960; Ph.D., University of California, 1969.
- J. Weldon Moffitt** ..... Professor of Organizational Behavior (1963)  
B.S., Brigham Young University, 1949; M.S., University of Utah, 1950; Ph.D., University of Illinois, 1953.
- Darrel J. Monson** ..... Associate Professor of Electrical Engineering; Director, Communications Services (1956)  
B.S., University of Utah, 1943; M.S., University of California at Berkeley, 1952.
- David C. Montgomery** ..... Assistant Professor of History (1969)  
B.A., Brigham Young University, 1961; M.A., Ph.D., Indiana University, 1966, 1971.
- Harold K. Moon** ..... Professor of Spanish (1963)  
B.A., M.A., Brigham Young University, 1957, 1959; Ph.D., Syracuse University, 1963.
- Blaine H. Moore** ..... Associate Professor of Education (1970)  
B.S., M.Ed., Brigham Young University, 1955, 1960; Ed.D., Colorado State College, 1969.
- Glen Moore** ..... Professor of Botany (1958)  
B.S., Brigham Young University, 1949; Ph.D., University of Chicago, 1954.

- Hal G. Moore** ..... Professor of Mathematics (1961)  
B.S., M.S., University of Utah, 1952, 1957; Ph.D., University of California at Santa Barbara, 1967.
- Paul Caine Moore** ..... Assistant Professor of Speech (1966)  
B.S., M.S., Ph.D., University of Utah, 1951, 1958, 1973.
- Edwin B. Morrell** ..... Associate Professor of Political Science (1961)  
B.A., Brigham Young University, 1956; M.A., Ph.D., Harvard University, 1959, 1966.
- Kay Sherman Mortensen** ..... Associate Professor of Technology (1968)  
B.S., M.S., Utah State University, 1962, 1963; Ph.D., University of Utah, 1967.
- J. Joel Moss** ..... Professor of Child Development and Family Relationships (1961)  
B.S., M.S., Brigham Young University, 1948, 1949; Ph.D., University of North Carolina, 1954.
- J. Richard Murdock** ..... Professor of Botany (1952)  
B.S., M.S., Brigham Young University, 1949, 1951; Ph.D., Washington State University, 1956.
- Joseph R. Murphy** ..... Professor of Zoology (1960)  
B.A., M.A., Brigham Young University, 1950, 1951; Ph.D., University of Nebraska, 1957.
- Ivan David Muse** ..... Associate Professor of Education (1970)  
B.S., Brigham Young University, 1955; M.Ed., University of Arizona, 1958; D.Ed., University of Utah, 1966.
- Peter L. Myer** ..... Associate Professor of Art and Design (1972)  
B.A., Brigham Young University, 1956; MFA, University of Utah, 1959.
- Merlin G. Myers** ..... Professor of Anthropology and Archaeology (1963)  
B.A., Brigham Young University, 1951; Ph.D., University of Cambridge, 1963.
- Jay H. Naylor** ..... Associate Professor of Recreation Education (1961)  
B.S., M.S., Brigham Young University, 1958, 1959; Ed.D., University of Utah, 1973.
- Donald K. Nelson** ..... Associate Professor of Library Science; Director of Library (1961)  
B.S., Utah State University, 1938; MBA, University of Denver, 1949.
- George E. Nelson, Jr.** ..... Associate Professor of Business Education (1968)  
B.S., M.S., University of Utah, 1965, 1966; Ed.D., Arizona State University, 1968.
- Glen T. Nelson** ..... Professor of Economics (1954)  
B.S., M.S., Utah State University, 1942, 1948; Ph.D., University of Illinois, 1950.
- H. Mark Nelson** ..... Professor of Physics (1959)  
B.S., M.S., Brigham Young University, 1953, 1954; Ph.D., Harvard University, 1960.
- K. LeRoi Nelson** ..... Professor of Chemistry (1956)  
B.S., Utah State University, 1948; Ph.D., Purdue University, 1952.
- Sheldon Douglas Nelson** ..... Assistant Professor of Agronomy (1972)  
B.S., Brigham Young University, 1967; Ph.D., University of California at Riverside, 1971.
- Parley W. Newman** ..... Professor of Speech (1966)  
B.S., M.S., Utah State University, 1950, 1951; Ph.D., State University of Iowa, 1954.
- Hugh W. Nibley** ..... Professor of Ancient Scripture (1946)  
B.A., University of California at Los Angeles, 1934; Ph.D., University of California, 1938.
- Reid Nibley** ..... Professor of Music (1969)  
BFA, M.A., University of Utah, 1950, 1953; DMA, University of Michigan, 1964.
- Henry J. Nicholes** ..... Professor of Zoology (1946)  
B.A., Brigham Young University, 1935; Ph.D., University of Wisconsin, 1941.
- Howard C. Nielson** ..... Professor of Statistics; Director, Center for Business and Economic Research (1957)  
B.S., University of Utah, 1947; M.S., University of Oregon, 1949; MBA, Ph.D., Stanford University, 1956, 1958.
- Dale LeRoy Nish** ..... Associate Professor of Industrial Education (1967)  
B.S., M.S., Brigham Young University, 1957, 1958; Ed.D., Washington State University, 1967.
- Quentin R. Nordgren** ..... Professor of Music (1955)  
B.A., M.A., Brigham Young University, 1942, 1950; Ph.D., Indiana University, 1955.
- Francis R. Nordmeyer** ..... Assistant Professor of Chemistry (1972)  
B.A., Wabash College, 1961; M.A., Wesleyan University, 1964; Ph.D., Stanford University, 1967.

- Theodore A. Norman** ..... Assistant Professor of Computer Science (1969)  
B.S., University of Utah, 1962; M.S., Ph.D., Washington State University, 1968, 1970.
- James A. North** ..... Professor of Microbiology (1965)  
B.S., M.S., Brigham Young University, 1958, 1960; Ph.D., University of Utah, 1964.
- Monte S. Nyman** ..... Associate Professor of Ancient Scripture (1966)  
B.S., M.S., Utah State University, 1952, 1958; Ed.D., Brigham Young University, 1965.
- Keith R. Oakes** ..... Professor of Educational Administration (1972)  
B.S., M.S., Utah State Agricultural College, 1940, 1948; Ed.D., University of Southern California, 1954.
- Clinton L. Oaks** ..... Professor of Business Management (1957)  
B.A., Brigham Young University, 1948; MBA, Ph.D., Stanford University, 1950, 1955.
- Harold R. Oaks** ..... Assistant Professor of Speech and Dramatic Arts (1970)  
B.A., M.A., Brigham Young University, 1960, 1962; Ph.D., University of Minnesota, 1964.
- Burton K. Olsen** ..... Associate Professor of Recreation Education (1965)  
B.S., M.S., Brigham Young University, 1963, 1964; Ph.D., University of Minnesota, 1969.
- John E. Ord** ..... Associate Professor of Elementary Education (1957)  
B.S., Utah State University, 1940; M.S., University of Utah, 1949; Ed.D., Stanford University, 1958.
- Leon Edwin Orme** ..... Professor of Animal Science (1969)  
B.S., Utah State University, 1953; M.S., University of Tennessee, 1955; Ph.D., Michigan State University, 1958.
- Bryce B. Orton** ..... Professor of Accounting;  
Assistant Dean, College of Business (1961)  
B.S., Brigham Young University, 1951; MBA, University of Oregon, 1957; DBA, University of Washington, 1962.
- J. Bevan Ott** ..... Professor of Chemistry (1960)  
B.S., M.S., Brigham Young University, 1955, 1956; Ph.D., University of California, 1959.
- Glen F. Ovard** ..... Professor of Educational Administration (1959)  
B.S., M.S., Brigham Young University, 1949, 1954; Ed.D., Stanford University, 1959.
- Russell T. Pack** ..... Associate Professor of Chemistry (1967)  
B.S., Brigham Young University, 1962; Ph.D., University of Wisconsin, 1967.
- Thane J. Packer** ..... Associate Professor of Youth Leadership (1959)  
B.S., Utah State University, 1939; M.S., Brigham Young University, 1963.
- E. Paul Palmer** ..... Associate Professor of Physics (1966)  
B.A., Ph.D., University of Utah, 1952, 1956.
- Spencer J. Palmer** ..... Professor of Church History and Doctrine (1962)  
B.A., Brigham Young University, 1952; M.A., Ph.D., University of California at Berkeley, 1959, 1964.
- Robert Lynn Park** ..... Associate Professor of Animal Science (1965)  
B.S., Brigham Young University, 1956; M.S., Ph.D., Cornell University, 1958, 1962.
- Robert J. Parsons** ..... Assistant Professor of Economics; Director of  
Research Survey Center (1970)  
B.S., M.S., Brigham Young University, 1964, 1966; Ph.D., University of California at Riverside, 1971.
- Robert C. Patch** ..... Professor of Ancient Scripture (1959)  
B.A., University of Mexico, 1945; M.Th., Ph.D., Brigham Young University, 1949, 1964.
- Edward G. Paul** ..... Associate Professor of Chemistry (1964)  
B.S., Ph.D., University of Utah, 1958, 1962.
- Ernest B. Paxson, Jr.** ..... Associate Professor of Mechanical  
Engineering Science (1969)  
B.A., B.S., Rice University, 1957, 1958; M.S., Ph.D., Stanford University, 1959, 1963.
- I. Reed Payne** ..... Associate Professor of Psychology (1964)  
B.S., Brigham Young University, 1956; M.S., Ph.D., Pennsylvania State University, 1958, 1963.
- Glenn L. Pearson** ..... Associate Professor of Ancient Scripture (1951)  
B.S., Utah State University, 1949; M.A., Brigham Young University, 1951.
- Darhl M. Pedersen** ..... Professor of Psychology (1962)  
B.S., M.S., Brigham Young University, 1957, 1958; Ph.D., University of Illinois, 1962.
- Devern Jay Perry** ..... Associate Professor of Business Education (1963)  
B.S., M.S., Brigham Young University, 1958, 1962; Ed.D., University of North Dakota, 1968.



- Betty J. Petersen** ..... Associate Professor of Business Education (1963)  
B.S., Utah State University, 1958; M.A., Ed.D., Columbia University, 1960, 1971.
- Melvin J. Petersen** ..... Associate Professor of Church History  
and Doctrine (1964)  
B.S., M.S., Ed.D., Brigham Young University, 1948, 1955, 1964.
- Morris S. Petersen** ..... Professor of Geology (1966)  
B.S., M.S., Brigham Young University, 1955, 1956; Ph.D., University of Iowa, 1962.
- Brent Dan Peterson** ..... Assistant Professor of Speech and Dramatic  
Arts (1972)  
B.A., M.A., Brigham Young University, 1967, 1968; Ph.D., Ohio University, 1970.
- Dean A. Peterson** ..... Professor of Business Education; Administrative  
Assistant to the President (1942)  
B.S., Brigham Young University, 1938; M.S., Ed.D., University of Southern California, 1942, 1959.
- Evan T. Peterson** ..... Professor of Sociology (1959)  
B.S., M.S., Brigham Young University, 1952, 1953; Ph.D., University of Michigan, 1959.
- H. Donl Peterson** ..... Associate Professor of Ancient Scripture (1964)  
B.S., M.Ed., Brigham Young University, 1954, 1960; Ed.D., Washington State University, 1965.
- John M. Peterson** ..... Associate Professor of Mathematics (1965)  
B.S., M.S., Ed.D., Utah State University, 1961, 1964, 1965.
- R. Douglas Phillips** ..... Associate Professor of Classical Languages (1966)  
B.A., Brigham Young University, 1962; M.A., Ph.D., University of Illinois, 1964, 1972.
- W. Revell Phillips** ..... Professor of Geology (1957)  
B.S., M.S., Ph.D., University of Utah, 1950, 1951, 1954.
- James Kent Pinney** ..... Associate Professor of Business Management (1967)  
B.A., University of Utah, 1962; MBA, DBA, Indiana University, 1964, 1968.
- James H. Polve** ..... Professor of Mechanical Engineering Science (1969)  
B.S., University of Utah, 1948; M.S., Princeton University, 1951; Ph.D., University of Arizona, 1966.
- Bill J. Pope** ..... Professor of Chemical Engineering (1958)  
B.S., University of Utah, 1947; M.S., Ph.D., University of Washington, 1948, 1959;  
Registered Professional Engineer, Utah, 1956.
- Clayne L. Pope** ..... Assistant Professor of Economics (1970)  
B.A., Brigham Young University, 1965; M.A., Ph.D., University of Chicago, 1968, 1972.
- Karl Theodore Pope** ..... Associate Professor of Dramatic Arts (1966)  
B.A., M.A., Brigham Young University, 1962, 1964; Ph.D., Wayne State University, 1966.
- Blaine R. Porter** ..... Professor of Child Development and Family  
Relationships; Dean of the College of Family Living (1955)  
B.S., M.A., Brigham Young University, 1947, 1949; Ph.D., Cornell University, 1952.
- Lawrence Cardon Porter** ..... Assistant Professor of Church History  
and Doctrine (1970)  
B.S., Utah State University, 1957; M.A., Ph.D., Brigham Young University, 1966, 1971.
- Alvin Harold Price** ..... Associate Professor of Child Development  
and Family Relationships (1966)  
B.S., Brigham Young University, 1960; M.A., Ph.D., University of Minnesota, 1963, 1966.
- B. Michael Pritchett** ..... Assistant Professor of Economics (1969)  
B.S., Brigham Young University, 1965; M.S., Ph.D., Purdue University, 1967, 1969.
- Louis H. Quackenbush** ..... Assistant Professor of Spanish and Portuguese (1970)  
B.A., M.A., Brigham Young University, 1965, 1967; Ph.D., University of Illinois, 1970.
- David Max Randall** ..... Assistant Professor of Music (1970)  
B.S., Brigham Young University, 1965; M.M., University of Indiana, 1967; DMA, University of Iowa, 1970.
- S. Neil Rasband** ..... Assistant Professor of Physics (1972)  
B.A., Ph.D., University of Utah, 1964, 1969.
- Carolyn Rasmus** ..... Assistant Professor of Physical Education (1972)  
B.S., M.Ed., Bowling Green State University, 1959, 1966.
- Dennis F. Rasmussen** ..... Assistant Professor of Philosophy (1970)  
B.S., University of Utah, 1966; M.Phil., Ph.D., Yale University, 1968, 1970.

- Ellis T. Rasmussen** ..... Assistant Dean, College of Religious Instruction;  
Professor of Ancient Scripture (1951)  
B.S., M.A., Ph.D., Brigham Young University, 1942, 1951, 1967.
- Jesse W. Reeder** ..... Professor of History and Political Science (1952)  
B.S., M.S., Utah State University, 1934, 1937; Ph.D., Cornell University, 1952.
- Howard T. Reid** ..... Professor of University Studies (1953)  
B.A., Brigham Young University, 1940; M.S., Ed.D., University of Southern California, 1947, 1949.
- Alvin C. Rencher** ..... Associate Professor of Statistics (1963)  
B.S., M.A., Brigham Young University, 1959, 1962; Ph.D., Virginia Polytechnic Institute, 1968.
- Noel Beldon Reynolds** ..... Assistant Professor of Philosophy (1970)  
B.A., Brigham Young University, 1967; M.A., Ph.D., Harvard University, 1968, 1970.
- Ruben Ward Rhee** ..... Assistant Professor of Zoology (1973)  
B.S., University of Utah, 1967; Ph.D., Colorado State University, 1971.
- Ronald L. Rhodes** ..... Assistant Professor of Health Science (1962)  
B.S., Elmhurst College, 1957; M.S., Brigham Young University, 1962; Ph.D., Oregon State University, 1971.
- Owen S. Rich** ..... Professor of Communications (1950)  
B.S., Brigham Young University, 1950; M.A., University of Southern California, 1953; Ed.D., Pennsylvania State University, 1963.
- Russell R. Rich** ..... Professor of Church History and Doctrine (1953)  
B.S., Utah State University, 1936; M.A., Brigham Young University, 1949; Ed.D., University of Wyoming, 1955.
- Dale O. Richards** ..... Professor of Statistics (1963)  
B.S., Utah State University, 1950; M.S., Ph.D., Iowa State University, 1957, 1963.
- J. Morris Richards** ..... Associate Professor of Communications (1965)  
B.A., Arizona State College, 1929; M.A., University of Arizona, 1937.
- Jed J. Richardson** ..... Associate Professor of Speech and Dramatic Arts (1955)  
B.S., M.S., Utah State University, 1949, 1955.
- Dean Rickenbach** ..... Associate Professor of Economics (1963)  
B.S., Brigham Young University, 1954; M.S., Stanford University, 1957; Ph.D., Indiana University, 1963.
- Eldin Ricks** ..... Associate Professor of Ancient Scripture (1949)  
B.S., Brigham Young University, 1941; M.A., University of California, 1949; Ph.D., Dropsie College, 1970.
- Chauncey C. Riddle** ..... Professor of Philosophy;  
Dean of the Graduate School (1952)  
B.S., Brigham Young University, 1947; M.A., Ph.D., Columbia University, 1951, 1958.
- J. Keith Rigby** ..... Professor of Geology (1953)  
B.S., M.S., Brigham Young University, 1948, 1949; Ph.D., Columbia University, 1952.
- J. Bonner Ritchie** ..... Associate Professor of Organizational Behavior (1973)  
B.S., University of California, 1960; Ph.D., University of California, 1967.
- Burton W. Robinson** ..... Counselor, Personal Development Center;  
Professor of Psychology (1955)  
B.S., M.S., Utah State University, 1951; Ph.D., Purdue University, 1954.
- Donald W. Robinson** ..... Professor of Mathematics (1956)  
B.S., M.A., University of Utah, 1948, 1952; Ph.D., Case Institute of Technology, 1956.
- Paul Robinson** ..... Assistant Professor of Psychology (1969)  
B.S., M.S., Ph.D., Utah State University, 1965, 1967, 1972.
- Clayne Wilcox Robison** ..... Assistant Professor of Music (1973)  
B.A., B.A., Brigham Young University, 1962, 1970; J.D., Harvard Law School, 1965; M. Mus., DMA, University of Washington, 1971, 1973.
- Laren R. Robison** ..... Professor of Agronomy and Horticulture (1971)  
B.S., M.S., Brigham Young University, 1958, 1959; Ph.D., University of Minnesota, 1962.
- J. Keith Rogers** ..... Assistant Professor of Recreation Education (1971)  
A.A., Dixie College, 1957; B.S., M.Ed., Brigham Young University, 1959, 1963; Ph.D., Michigan State University, 1971.
- R. Max Rogers** ..... Professor of German; Assistant Dean,  
College of Humanities (1945)  
B.A., M.A., Brigham Young University, 1940, 1942; Ph.D., Stanford University, 1951.
- Thomas F. Rogers** ..... Associate Professor of Russian (1969)  
B.A., University of Utah, 1955; M.A., Yale University, 1962; Ph.D., Georgetown University, 1968.



- Vern C. Rogers** ..... Associate Professor of Physics (1969)  
B.S., M.S., University of Utah, 1965; Ph.D., Massachusetts Institute of Technology, 1968.
- Norma Rohde** ..... Associate Professor of Educational Psychology;  
Counselor, Personal Development Center (1965)  
B.A., University of Utah, 1949; M.A., Columbia University, 1958; Ed.D., Brigham Young University, 1965.
- Boyd C. Rollins** ..... Professor of Child Development and  
Family Relationships (1963)  
B.S., Utah State University, 1953; M.S., Brigham Young University, 1958; Ph.D., Cornell University, 1961.
- L. McKay Rollins** ..... Assistant Professor of Health Science (1962)  
B.S., M.S., Brigham Young University, 1961, 1962; Ph.D., University of Utah, 1971.
- Ralph L. Rollins** ..... Professor of Civil Engineering (1956)  
B.S., M.S., Utah State University, 1941, 1949; Ph.D., Iowa State University, 1954;  
Registered Engineer, Utah, 1958, Nevada, 1967.
- Keith Leroy Roos** ..... Assistant Professor of German (1968)  
B.A., University of Utah, 1964; Ph.D., Rice University, 1968.
- Harold E. Rosen** ..... Associate Professor of Spanish (1966)  
B.A., M.A., Brigham Young University, 1954, 1959; Ph.D., University of Oregon, 1966.
- Elmo S. Roundy** ..... Professor of Physical Education (1963)  
B.S., M.Ed., Brigham Young University, 1953, 1956; Ed.D., University of California at Los Angeles, 1965.
- Samuel R. Rushforth** .... Assistant Professor of Botany and Range Science (1970)  
B.S., Weber State College, 1966; M.S., Ph.D., Brigham Young University, 1968, 1970.
- Richard D. Sagers** ..... Professor of Microbiology (1958)  
B.S., M.S., Brigham Young University, 1954, 1955; Ph.D., University of Illinois, 1958.
- Richard D. Salazar** ..... Assistant Professor of Health Sciences (1963)  
B.S., M.S., Brigham Young University, 1958, 1962; Ph.D., Southern Illinois University, 1972.
- Clyde D. Sandgren** ..... Vice-President and General Counsel; Professor of  
Political Science (1954)  
B.S., Brigham Young University, 1937; LL.B., J.D., St. John's University, 1939, 1968.
- Lawrence W. Sardoni** ..... Professor of Music (1945)  
B.A., M.A., Brigham Young University, 1935, 1946.
- Ronald L. Schill** ..... Assistant Professor of Business Management (1970)  
B.S., MBA, University of Utah, 1962, 1963; DBA, University of Oregon, 1971.
- A. Lynn Scoresby** ..... Associate Professor of Child Development and  
Family Relationships (1970)  
B.S., M.A., Brigham Young University, 1965, 1966; Ph.D., University of Minnesota, 1969.
- Robert E. Seegmiller** ..... Assistant Professor of Zoology (1972)  
B.S., M.S., University of Utah, 1965, 1967; Ph.D., McGill University, 1970.
- John F. A. Seggar** ..... Associate Professor of Sociology (1966)  
B.S., Brigham Young University, 1962; M.A., Ph.D., University of Kentucky, 1964, 1968.
- Donald D. Shaw** ..... Professor of Health Science (1959)  
B.A., M.S., Brigham Young University, 1957, 1961; Ed.D., Oregon State University, 1965.
- Lyman Sidney Shreeve, Sr.** ..... Associate Professor of Spanish (1965)  
B.A., M.A., Brigham Young University, 1949, 1950; Ph.D., Interamerican University, Mexico, 1970.
- R. Phil Shumway** ..... Professor of Animal Science (1949)  
B.S., Utah State University, 1947; M.S., University of Minnesota, 1949; Ph.D., Utah State University, 1959.
- Val Eugene Simmons** ..... Associate Professor of Technology (1960)  
B.S., University of Utah, 1964; M.S., Brigham Young University, 1967; Ph.D., Utah State University, 1970.
- John M. Simonsen** ..... Professor of Mechanical Engineering (1954)  
BSME, University of Utah, 1950; MSME, Ph.D., Purdue University, 1952, 1955;  
Registered Professional Engineer, Utah, 1957.
- R. Vencil Skarda, Jr.** ..... Associate Professor of Mathematics (1965)  
B.A., Pomona College, 1961; M.S., Ph.D., California Institute of Technology, 1964, 1965.

- Karl M. Skousen** ..... Professor of Accounting; Chairman, Accounting Department (1958)  
B.S., M.S., Brigham Young University, 1944, 1957; CPA, Utah, 1957; Ph.D., Michigan State University, 1962.
- K. Fred Skousen** ..... Associate Professor of Accounting (1970)  
B.S., Brigham Young University, 1965; MAS, Ph.D., University of Illinois, 1966, 1968; CPA, Utah, 1968.
- Robert H. Slover** ..... Associate Professor of Political Science (1965)  
B.A., University of Oklahoma, 1935; M.A., Ph.D., Harvard University, 1948, 1950.
- Gary Richard Smith** ..... Associate Professor of Business Education (1969)  
B.A., M.A., Idaho State University, 1954, 1959; Ed.D., University of Idaho, 1969.
- Harold T. Smith** ..... Associate Professor of Business Education (1963)  
B.A., M.A., Colorado State College, 1958, 1959; Ed.D., Brigham Young University, 1967.
- Howard Duane Smith** ..... Associate Professor of Zoology (1969)  
B.S., M.S., Brigham Young University, 1963, 1966; Ph.D., University of Illinois, 1969.
- Jay M. Smith, Jr.** ..... Professor of Accounting (1971)  
B.S., M.S., Brigham Young University, 1953, 1960; Ph.D., Stanford University, 1965; CPA, Utah, 1958.
- Kay H. Smith** ..... Professor of Psychology (1961)  
B.A., M.A., Brigham Young University, 1957, 1958; Ph.D., Wayne State University, 1962.
- LaMont Wood Smith** ..... Assistant Professor of Animal Science (1970)  
B.S., Brigham Young University, 1960; M.S., University of Wisconsin, 1962; Ph.D., West Virginia University, 1970.
- Marvin A. Smith** ..... Associate Professor of Chemistry (1966)  
B.S., Utah State University, 1960; M.S., Ph.D., University of Wisconsin, 1962, 1966.
- Murray F. Smith** ..... Associate Professor of German (1962)  
B.A., University of Utah, 1956; M.A., Ph.D., University of Southern California, 1961, 1967.
- Nathan M. Smith** ..... Assistant Professor of Library and Information Sciences (1967)  
B.S., Eastern Oregon College, 1961; M.S., Oregon State College, 1965; MLS, Ph.D., Brigham Young University 1969, 1972.
- Oliver R. Smith** ..... Professor of Communications (1938)  
B.A., Brigham Young University, 1938; Ph.D., State University of Iowa, 1951.
- Ralph B. Smith** ..... Professor of Education (1963)  
B.S., Brigham Young University, 1943; M.A., University of Southern California, 1947; Ed.D., Brigham Young University, 1962.
- Robert J. Smith** ..... Professor of Accounting; Associate Academic Vice-President (1949)  
B.S., Brigham Young University, 1948; MBA, Northwestern University, 1949; CPA, Illinois, 1949; CPA, Utah, 1950; DBA, Indiana University, 1957.
- Wilford E. Smith** ..... Professor of Sociology (1948)  
B.A., University of Utah, 1943; M.A., Brigham Young University, 1948; Ph.D., University of Washington, 1952.
- L. Douglas Smoot** ..... Professor of Chemical Engineering (1967)  
B.S., BES, Brigham Young University, 1957; M.S., Ph.D., University of Washington, 1958, 1960; Registered Professional Engineer, Utah, 1963.
- Donald Ray Snow** ..... Associate Professor of Mathematics (1969)  
B.A., BSME, University of Utah, 1959; MSME, M.S., Ph.D., Stanford University, 1960, 1962, 1965.
- Glenn Gardner Snow** ..... Associate Professor of Education (1969)  
B.S., M.Ed., Brigham Young University, 1950, 1959; Ph.D., Michigan State University, 1969.
- Karl Nelson Snow, Jr.** ..... Associate Professor of Political Science (1969)  
B.S., Brigham Young University, 1956; M.A., University of Minnesota, 1958; MPA, University of Southern California, 1965.
- Richard L. Snow** ..... Professor of Chemistry (1957)  
B.S., Ph.D., University of Utah, 1953, 1957.
- Steven P. Sondrup** ..... Assistant Professor of Humanities and Comparative Literature (1973)  
B.A., University of Utah, 1968; M.A., Ph.D., Harvard University, 1969, 1974.
- A. Don Sorensen** ..... Associate Professor of Political Science (1970)  
B.S., Utah State University, 1960; M.A., Ph.D., University of Illinois, 1962, 1965.

- John Leon Sorenson** ..... Professor of Anthropology and Sociology (1971)  
B.S., M.A., Brigham Young University, 1951, 1952; M.S., California Institute of Technology, 1952; Ph.D., University of California at Los Angeles, 1961.
- Walter H. Speidel** ..... Professor of German (1963)  
Abitur, Germany, 1940; State Examination, Germany, 1948; M.A., University of Utah, 1960; Ph.D., University of Kansas, 1963.
- Berkley A. Spencer** ..... Associate Professor of Sociology (1969)  
B.A., M.A., Brigham Young University, 1960, 1962; Ph.D., Cornell University, 1967.
- Robert W. Spencer** ..... Associate Professor of Special Education; Dean of Admissions and Records (1970)  
B.S., M.S., Utah State University, 1963, 1964; Ed.D., Brigham Young University, 1971.
- John Stephen Staley** ..... Professor of Sociology (1969)  
B.A., M.A., St. Vincent College, 1938, 1939; M.A., Catholic University of America, 1950; Ph.D., University of Pittsburgh, 1960.
- Melvin J. Stanford** ..... Associate Professor of Business Management; Director of Management Development Programs (1968)  
B.S., Utah State University, 1957; MBA, Harvard University, 1963; Ph.D., University of Illinois, 1968.
- Eric G. Stephan** ..... Associate Professor of Speech and Dramatic Arts (1968)  
B.A., Brigham Young University, 1961; M.A., Indiana University, 1963; Ph.D., University of California at Los Angeles, 1969.
- David M. Sorenson** ..... Associate Professor of Psychology; Director of the Personal Development Center; Assistant Dean of Students for Health and Counseling (1969)  
B.A., Brigham Young University, 1961; Ed.M., Ed.D., Harvard University, 1962, 1970.
- Kent Gordon Stephens** ..... Associate Professor of Educational Administration (1972)  
B.S., Brigham Young University, 1960; M.Ed., Midwestern University, 1963; Ph.D., University of Washington, 1972.
- Dale John Stevens** ..... Assistant Professor of Geography (1966)  
B.A., Brigham Young University, 1961; M.A., Indiana University, 1963; Ph.D., University of California at Los Angeles, 1969.
- David V. Stimpson** ..... Associate Professor of Psychology (1964)  
B.S., M.S., Brigham Young University, 1959, 1960; Ph.D., University of California at Berkeley, 1964.
- Ted D. Stoddard** ..... Associate Professor of Business Education (1969)  
B.S., M.S., Brigham Young University, 1962, 1963; Ed.D., Arizona State University, 1967.
- W. Douglas Stout** ..... Associate Professor of Art (1969)  
B.A., University of Utah, 1959; M.S., Illinois Institute of Technology, 1961.
- William J. Strong** ..... Associate Professor of Physics (1967)  
B.S., M.S., Brigham Young University, 1958, 1959; Ph.D., Massachusetts Institute of Technology, 1964.
- Darrell W. Stubbs** ..... Associate Professor of Music (1962)  
B.Mus., Eastman School of Music, 1949; M.M., Indiana University, 1952; DMA, University of Southern California, 1966.
- Howard C. Stutz** ..... Professor of Botany (1953)  
B.S., M.S., Brigham Young University, 1940, 1951; Ph.D., University of California at Berkeley, 1956.
- Floyd Sucher** ..... Professor of Elementary Education (1964)  
B.S., Brigham Young University, 1954; M.A., Los Angeles State College, 1957; Ed.D., Colorado State College, 1963.
- Albert D. Swensen** ..... Professor of Chemistry (1947)  
B.A., M.A., Brigham Young University, 1937, 1938; Ph.D., Louisiana State University, 1941.
- Wilmer W. Tanner** ..... Professor of Zoology (1949)  
B.A., M.A., Brigham Young University, 1936, 1937; Ph.D., University of Kansas, 1949.
- Charles D. Tate, Jr.** ..... Associate Professor of English (1960)  
B.S., M.S., Utah State University, 1954, 1958; Ph.D., University of Colorado, 1966.
- Barbara Taylor** ..... Assistant Professor of Child Development and Family Relationships (1957)  
B.S., M.S., Ph.D., Brigham Young University, 1957, 1960, 1971.
- Dale H. Taylor** ..... Professor of Accounting (1963)  
B.A., M.A., Brigham Young University, 1951, 1953; CPA, Illinois, 1955; Ph.D., Northwestern University, 1963.

- James S. Taylor** ..... Associate Professor of Spanish (1962)  
B.A., M.A., Brigham Young University, 1957, 1960; Ph.D., Ohio State University, 1967.
- Stanley A. Taylor** ..... Associate Professor of Political Science (1968)  
B.S., Brigham Young University, 1959; MALD, Ph.D., Fletcher School of Law and Diplomacy, 1961, 1968.
- Weldon J. Taylor** ..... Professor of Marketing; Dean of the College of Business (1937)  
B.S., Brigham Young University, 1934; MBA, Harvard Graduate School of Business Administration, 1937; Ph.D., Graduate School of Business Administration, New York University, 1955.
- Douglas H. Thayer** ..... Associate Professor of English (1957)  
B.A., Brigham Young University, 1955; M.A., Stanford University, 1959; MFA, State University of Iowa, 1962.
- Darwin L. Thomas** ..... Associate Professor of Child Development and Family Relationships (1972)  
B.A., M.A., Brigham Young University, 1962, 1964; Ph.D., University of Minnesota, 1968.
- Glen E. Thomas** ..... Associate Professor of Education (1968)  
B.S., M.Ed., University of Idaho, 1954, 1957; Ed.D., Colorado State College, 1968.
- John A. Thomas** ..... Associate Professor of English (1962)  
B.A., M.A., Brigham Young University, 1953, 1954; Ph.D., University of Maryland, 1962.
- Robert K. Thomas** ..... Professor of English; Academic Vice-President (1951)  
B.A., Reed College, 1947; M.A., University of Oregon, 1949; Ph.D., Columbia University, 1967.
- Paul H. Thompson** ..... Associate Professor of Organizational Behavior (1973)  
B.S., University of Utah, 1964; MBA, DBA, Harvard Business School, 1966, 1969.
- Woodruff C. Thomson** ..... Professor of English (1950)  
B.A., M.A., Ph.D., University of Utah, 1938, 1949, 1962.
- Dennis Eugene Thorne** ..... Associate Professor of Psychology (1966)  
B.S., Brigham Young University, 1962; M.A., Ph.D., University of Utah, 1965, 1966.
- James M. Thorne** ..... Associate Professor of Chemistry (1966)  
B.S., Utah State University, 1961; M.A., Ph.D., University of Utah, 1965, 1966.
- Lucile Markham Thorne** ..... Associate Professor of Library and Information Sciences (1950)  
B.A., M.Ed., Ed.D., Brigham Young University, 1929, 1956, 1967; M.S., University of Southern California, 1958.
- Malcolm R. Thorp** ..... Assistant Professor of History (1969)  
B.S., M.A., Brigham Young University, 1964, 1967; Ph.D., University of Wisconsin, 1972.
- Clark T. Thorstenson** ..... Associate Professor of Recreation Education (1969)  
B.S., M.R.Ed., Brigham Young University, 1962, 1965; Ph.D., University of Utah, 1969.
- Alton L. Thygersen** ..... Associate Professor of Health Science (1967)  
B.S., M.H.Ed., Ed.D., Brigham Young University, 1962, 1965, 1969.
- William D. Tidwell** ..... Associate Professor of Botany (1966)  
B.S., M.S., Brigham Young University, 1954, 1963; Ph.D., Michigan State University, 1966.
- Frank M. Tippetts** ..... Associate Professor of Art (1958)  
B.A., M.A., Brigham Young University, 1953, 1962; Ed.D., Arizona State University, 1968.
- Vernon John Tipton** ..... Professor of Zoology (1968)  
B.S., M.S., Brigham Young University, 1948, 1949; Ph.D., University of California at Berkeley, 1959.
- Douglas F. Tobler** ..... Associate Professor of History (1967)  
B.A., M.A., Brigham Young University, 1961, 1962; Ph.D., University of Kansas, 1967.
- Lawrence Kirk Tolman** ..... Assistant Professor of Mathematics (1965)  
B.S., M.S., Brigham Young University, 1960, 1961; Ph.D., University of New Mexico, 1972.
- F. LaMond Tullis** ..... Associate Professor of Political Science (1969)  
B.A., M.A., Brigham Young University, 1961, 1964; MPA, Ph.D., Harvard University, 1965, 1969.
- Glen H. Turner** ..... Professor of Art (1947)  
B.S., M.A., Brigham Young University, 1940, 1948.
- Norman C Turner** ..... Associate Professor of French and Italian (1970)  
B.A., M.A., Brigham Young University, 1957, 1958; Ph.D., Syracuse University, 1962.



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B.A., M.A., Brigham Young University, 1949, 1953; Ed.D., University of Southern California, 1960.
- Richard D. Ulrich** ..... Professor of Mechanical Engineering (1968)  
B.S., M.S., Ph.D., Purdue University, 1954, 1955, 1959.
- Arthur E. Unsworth** ..... Assistant Professor of Music (1973)  
B.S., M.A., Trenton State College, 1959, 1961; Ed.D., Arizona State University, 1970.
- John Franklin Vallentine** ..... Professor of Range Science (1968)  
B.S., Kansas State University, 1952; M.S., Utah State University, 1953; Ph.D., Texas A&M University, 1959.
- Curtis N. Van Alfen** ..... Professor of Education; Dean of the College of Education (1967)  
B.S., M.S., Utah State University, 1957, 1959; Ed.D., University of Utah, 1967.
- Howard B. Vanfleet** ..... Professor of Physics (1960)  
B.S., Brigham Young University, 1955; Ph.D., University of Utah, 1961.
- Adrian Van Mondfrans** .... Associate Professor of Educational Psychology (1971)  
B.S., M.A., University of Utah, 1963, 1964; Ph.D., University of Wisconsin, 1967.
- Leo P. Vernon** ..... Director of Research (1970)  
B.A., Brigham Young University, 1948; Ph.D., Iowa State University, 1951.
- Vern J. Wade** ..... Assistant Professor of Elementary Education (1971)  
B.S., Brigham Young University, 1962; M.A., Ed.D., University of Northern Colorado, 1969, 1971.
- Rex A. Wadham** ..... Assistant Professor of Educational Psychology (1963)  
B.S., Brigham Young University, 1963; M.A., University of Utah, 1967; MLS, Brigham Young University, 1967; Ph.D., University of Utah, 1972.
- Ruth Merrill Walker** ..... Assistant Professor of Food Science and Nutrition (1972)  
B.Sc., University of Alberta, 1941; M.S., Washington State University, 1943; Ph.D., University of Wisconsin, 1972.
- Max V. Wallentine** ..... Professor of Animal Science; Assistant Dean, College of Biological and Agricultural Sciences (1962)  
B.S., Utah State University, 1955; M.S., Ph.D., Cornell University, 1956, 1960.
- Charles N. Walter** ..... Assistant Professor of Mathematics (1969)  
B.S., M.A., Ph.D., University of New Mexico, 1963, 1965, 1969.
- Wilbur T. Walton** ..... Assistant Professor of Educational Psychology (1971)  
B.A., Brigham Young University, 1957; M.S., Ph.D., University of Utah, 1965, 1969.
- C. Terry Warner** ..... Associate Professor of Philosophy; Director, Honors Program; Dean of the College of General Studies (1967)  
B.A., Brigham Young University, 1963; M.A., Ph.D., Yale University, 1965, 1967.
- Charles Young Warner** ..... Professor of Mechanical Engineering (1966)  
BES, M.S., Brigham Young University, 1957, 1963; Ph.D., University of Michigan, 1966; Registered Professional Engineer, Utah, 1967.
- S. Elvon Warner** ..... Associate Professor of Business Education (1961)  
B.S., M.S., Brigham Young University, 1960; Ed.D., Arizona State University, 1968.
- Ted J. Warner** ..... Professor of History (1962)  
B.S., M.S., Brigham Young University, 1955, 1958; Ph.D., University of New Mexico, 1964.
- W. Keith Warner** ..... Professor of Sociology (1971)  
B.S., M.S., Utah State University, 1958, 1959; Ph.D., Cornell University, 1960.
- F. Delmar Wasden** ..... Associate Professor of Elementary Education (1971)  
B.S., M.Ed., Ed.D., Brigham Young University, 1961, 1966, 1971.
- Max L. Waters** ..... Professor of Business Education (1958)  
B.A., M.Ed., Brigham Young University, 1958, 1960; Ed.D., Colorado State College, 1963.
- Jean Anne Waterstradt** ..... Associate Professor of English (1945)  
B.A., Brigham Young University, 1945; M.A., University of Southern California, 1955.
- Arthur R. Watkins** ..... Professor of German (1952)  
B.A., M.A., Brigham Young University, 1941, 1942; Ph.D., Stanford University, 1948.
- Ray Watters** ..... Professor of Health Science (1957)  
B.S., M.S., Utah State University, 1948, 1950; HSD, Indiana University, 1960.
- Stanley H. Watts** ..... Associate Professor of Physical Education; Director of Athletics (1947)  
B.S., Brigham Young University, 1938.
- Max D. Weaver** ..... Professor of Art (1961)  
B.S., M.A., Utah State University, 1939, 1955.



- Ross Maughan Weaver** ..... Associate Professor of Speech (1959)  
B.S., M.S., Utah State University, 1950, 1951; Ph.D., University of Oklahoma, 1970.
- Clark D. Webb** ..... Assistant Professor of Education (1966)  
B.A., M.A., Brigham Young University, 1962, 1966.
- Darrell Jack Weber** ..... Associate Professor of Botany (1969)  
B.S., M.S., University of Idaho, 1958, 1959; Ph.D., University of California at Davis, 1963.
- David G. Weight** ..... Assistant Professor of Psychology (1969)  
B.A., M.S., Brigham Young University, 1963, 1965; Ph.D., University of Washington, 1969.
- M. Gawain Wells** ..... Assistant Professor of Psychology (1972)  
A.Sc., Dixie Junior College, 1964; B.S., M.S., Brigham Young University, 1967, 1968; Ph.D., Purdue University, 1972.
- Stanley L. Welsh** ..... Professor of Botany (1960)  
B.S., M.S., Brigham Young University, 1951, 1957; Ph.D., Iowa State University, 1960.
- Dale H. West** ..... Professor of English (1947)  
B.A., Brigham Young University, 1940; M.A., University of Southern California, 1955; Ed.D., University of Colorado, 1962.
- Harold F. Western** ..... Associate Professor of Accounting (1972) \n  
B.S., M.S., Brigham Young University, 1954, 1960.
- Lorin F. Wheelwright** ..... Professor of Music; Dean, College of Fine Arts  
and Communications (1967)  
B.S., University of Utah, 1930; M.A., University of Chicago, 1931; Ph.D., Columbia University, 1938.
- Clayton M. White** ..... Associate Professor of Zoology (1970)  
A.B., Ph.D., University of Utah, 1961, 1968.
- David Arnold White** ..... Assistant Professor of Zoology (1966)  
B.S., M.S., Brigham Young University, 1961, 1964; Ph.D., University of Wisconsin, 1967.
- Fred G. White** ..... Associate Professor of Chemistry (1961)  
B.S., M.S., Brigham Young University, 1952, 1956; Ph.D., University of California, 1961.
- Armand T. Whitehead** ..... Assistant Professor of Zoology (1969)  
B.S., Brigham Young University, 1965; Ph.D., University of California at Berkeley, 1969.
- Charles W. Whitman** ..... Associate Professor of Dramatic Arts (1965)  
B.A., M.A., Brigham Young University, 1957, 1958; Ph.D., University of Minnesota, 1966.
- Leslie Whitton** ..... Associate Professor of Botany (1962)  
B.S., Utah State University, 1949; M.S., University of California at Davis, 1953; Ph.D., Cornell University, 1964.
- Harry E. Wickes** ..... Associate Professor of Mathematics (1957)  
B.S., M.Ed., Brigham Young University, 1950, 1954; M.Ed., Harvard University, 1962; Ed.D., Colorado State College, 1967.
- Marjorie Wright** ..... Assistant Professor of English (1963)  
B.A., Brigham Young University, 1943; M.A., University of California at Los Angeles, 1958; Ph.D., University of Southern California, 1967.
- Theodore A. Wight** ..... Assistant Professor of Mathematics (1963)  
B.S., M.S., Ed.D., University of Utah, 1955, 1964, 1969.
- Ray T. Wilcox** ..... Associate Professor of Secondary Education (1957)  
B.S., M.Ed., Brigham Young University, 1951, 1954; Ed.D., University of California at Berkeley, 1957.
- Doran F. Wilkes** ..... Associate Professor of Civil Engineering (1967)  
B.S., M.S., Utah State University, 1951, 1955; Ed.D., University of Missouri, 1966.
- Ernest J. Wilkins** ..... Professor of Spanish (1953)  
B.A., Brigham Young University, 1947; M.A., Ph.D., Stanford University, 1949, 1954.
- Ernest L. Wilkinson** ..... Professor of Political Science (1951)  
B.A., Brigham Young University, 1921; J.D., George Washington University, 1926; S.J.D., Harvard University, 1927; hon. LL.D., Brigham Young University, 1957.
- Milton G. Wille** ..... Professor of Mechanical Engineering (1964)  
B.A., B.E.S., Brigham Young University, 1957, 1957; MSME, California Institute of Technology, 1958; Ph.D., University of Michigan, 1964; Registered Professional Engineer, Utah, 1965.
- C. Frank Williams** ..... Assistant Professor of Agronomy and Horticulture (1970)  
B.S., M.S., Utah State University, 1967, 1968; Ph.D., Oregon State University, 1971.
- Gary Shelton Williams** ..... Assistant Professor of Asian Languages (1966)  
B.A., Brigham Young University, 1962; Ph.D., University of Washington, 1973.

- Glenn R. Williams** ..... Professor of Music (1965)  
B.A., Brigham Young University, 1953; M.M., DMA, Eastman School of Music, 1954, 1961.
- Ray S. Williams** ..... Associate Professor of English (1966)  
A.B., Coker College, 1960; M.A., Ph.D., Florida State University, 1962, 1965.
- Arnold Wilson** ..... Associate Professor of Civil Engineering (1957)  
B.S., M.S., Brigham Young University, 1957, 1962; Registered Professional Engineer, Utah, 1963.
- Byron J. Wilson** ..... Professor of Chemistry (1965)  
B.S., Idaho State College, 1955; M.A., Southern Illinois University, 1958; Ph.D., University of Washington, 1961.
- Grant M. Wilson** ..... Associate Professor of Chemical Engineering (1972)  
B.S., Brigham Young University, 1953; Ph.D., Massachusetts Institute of Technology, 1958.
- Warren B. Wilson** ..... Professor of Art and Education (1954)  
B.S., Utah State University, 1943; MFA, State University of Iowa, 1949.
- Larry T. Wimmer** ..... Associate Professor of Economics (1963)  
B.S., Brigham Young University, 1960; M.A., Ph.D., University of Chicago, 1962, 1968.
- Robert N. Winget** ..... Research Associate (1970)  
B.S., M.S., Ph.D., University of Utah, 1967, 1968, 1970.
- H. Geneva Winterrose** ..... Associate Professor of Elementary  
Education (1967)  
B.S., M.S., Brigham Young University, 1948, 1951; Ed.D., Utah State University, 1968.
- Edward J. Winward** ..... Counselor in Personal Development Center;  
Associate Professor of Educational Psychology (1959)  
B.S., M.S., Utah State University, 1959, 1960; Ph.D., University of Missouri, 1966.
- Harold F. Wolfgramm** ..... Professor of Secondary Education (1966)  
B.S., M.S., Ph.D., University of Utah, 1959, 1960, 1964.
- Heber G. Wolsey** ..... Professor of Communications; Assistant to President  
in Charge of Communications (1963)  
B.S., Brigham Young University, 1942; M.A., Northwestern University, 1949; Ph.D., Michigan State University, 1967.
- Benjamin W. Wood** ..... Assistant Professor of Botany (1971)  
B.S., M.S., Brigham Young University, 1963, 1967; Ph.D., Oregon State University, 1971.
- Glena D. Wood** ..... Professor of English (1952)  
B.A., Brigham Young University, 1936; M.A., Ph.D., University of Kentucky, 1949, 1958.
- Joseph S. Wood** ..... Assistant Professor of History (1967)  
B.S., Ph.D., University of Utah, 1939, 1967.
- Lowell D. Wood** ..... Associate Professor of Agricultural Economics  
and Economics (1969)  
B.S., Brigham Young University, 1961; M.S., Montana State University, 1966; Ph.D., University of California at Berkeley, 1969.
- Stephen L. Wood** ..... Professor of Zoology (1956)  
B.S., M.S., Utah State University, 1946, 1948; Ph.D., University of Kansas, 1953.
- Lael J. Woodbury** ..... Assistant Dean, College of Fine Arts and  
Communications; Professor of Dramatic Arts (1965)  
B.S., Utah State University, 1952; M.A., Brigham Young University, 1953; Ph.D., University of Illinois, 1954.
- Richard C. Woodbury** ..... Associate Professor of Electrical  
Engineering (1959)  
B.S., University of Utah, 1956; M.S., Ph.D., Stanford University, 1958, 1965.
- Leon W. Woodfield** ..... Associate Professor of Accounting (1960)  
B.S., MBA, University of Utah, 1956, 1957; CPA, California, 1959, Utah, 1960; DBA, Michigan State University, 1965.
- Hugh James Woodford** ..... Assistant Professor of Physics (1968)  
Diploma, Public Administration, University of Sidney, Australia, 1948; B.S., M.S., Brigham Young University, 1952, 1955; Ph.D., University of Utah, 1966.
- Ralph Woodward** ..... Professor of Music (1955)  
B.A. University of Idaho, 1937; M.M., Cincinnati Conservatory of Music, 1948; DMA, University of Illinois, 1964.
- Earl M. Woolley** ..... Assistant Professor of Chemistry (1970)  
B.S., Ph.D., Brigham Young University, 1966, 1969.
- Richard R. Wootton** ..... Associate Professor of Education (1963)  
B.S., Ph.D., Brigham Young University, 1966, 1969.

- Donald N. Wright** ..... Associate Professor of Microbiology (1969)  
B.S., University of Utah, 1958; Ph.D., Iowa State University, 1964.
- H. Curtis Wright** ..... Associate Professor of Library and Information  
Sciences (1969)  
B.A., M.A., Brigham Young University, 1954, 1955; M.A., University of Southern  
California, 1959; M.S., Ph.D., Case Western Reserve University, 1968, 1969.
- N. Dale Wright** ..... Assistant Professor of Political Science (1968)  
B.S., M.S., Brigham Young University, 1964, 1966; Ph.D., University of Southern  
California, 1971.
- Jan E. Wynn** ..... Assistant Professor of Mathematics (1966)  
B.S., University of Idaho, 1962; M.S., Utah State University, 1965; Ph.D., Colorado  
State University, 1972.
- David H. Yarn, Jr.** ..... Professor of Philosophy (1950)  
B.A., Brigham Young University, 1946; M.A., Ed.D., Columbia University, 1949,  
1958.
- Paul H. Yearout** ..... Professor of Mathematics (1962)  
B.A., Reed College, 1949; M.S., Ph.D., University of Washington, 1958, 1961.
- James Robert Young** ..... Assistant Professor of Elementary Education (1971)  
B.A., M.Ed., Brigham Young University, 1965, 1966; Ph.D., George Peabody College,  
1970

On authorization by the Graduate Council the service of members of the graduate faculty will be supplemented by that of other members of the University faculty whose advanced training and effective academic work in highly specialized fields qualify them for service in the graduate program.

# General Information

## History and Purpose

Brigham Young University was founded as an academy of The Church of Jesus Christ of Latter-day Saints in 1875. It became a university in 1903. The first graduate program began in 1916; the first master's degree was awarded in 1919. Some doctoral programs were inaugurated in 1957, with the first doctorates awarded in 1961.

The purpose of the Graduate School is to promote quality programs for academic and professional education as a means of meliorating the conditions of human life. Acute intellectual ability coupled with deep moral and spiritual commitment is seen as the ideal.

## Organization

### The Graduate Dean

The dean is responsible for leadership and administration of the entire Graduate School. The Office of the Graduate Dean has as its principal function the processing and maintenance of student records, while assuring high quality in individual student programs.

### The Graduate Council

This council is composed of members elected from the graduate academic areas of the University and is presided over by the graduate dean. This body recommends policy for the Graduate School as a whole, processes all proposals for new degree programs, and conducts a continuous review of existing programs.

### College Deans, Department Chairmen, and Graduate Coordinators

These individuals implement graduate programs under approved policies and serve a critical quality-control function relative to individual student programs.

### The Graduate Faculty

Specially qualified members of the University faculty constitute the graduate faculty. Close professional and personal association of students with graduate faculty in learning, research, and teaching experiences helps provide students with the knowledge, skills, and judgment of a highly competent professional person.

### Graduate Student Steering Committee

Student representatives from the graduate academic areas are members of this committee. They consult on procedures for upgrading the Graduate School and conduct schoolwide academic and social student functions.

## Graduate Degrees

The Graduate School offers the master's degree in more than eighty-five fields distributed through forty-nine graduate departments and the doctor's degree in more than forty fields distributed through twenty-two graduate departments as follows:

#### Doctor of Philosophy

Botany and Range Science

Botany

Genetics

Chemistry

Analytical-Physical Chemistry

Biochemistry

Inorganic Chemistry

Organic Chemistry

Physical Chemistry

Child Development and Family Relationships

Child Development

Family Relationships

Marriage and Family Counseling

Educational Psychology

Counseling and Guidance

Educational Psychology

Special Education

Engineering

Chemical Engineering Science

Civil Engineering Science

Electrical Engineering Science

Mechanical Engineering Science

English

American Literature

English Literature

French and Italian

French Language



- French Literature
- French Teaching Emphasis
- Geology
  - Economic Geology
  - Mineralogy, Geochemistry, and Petrology
  - Paleontology
  - Stratigraphy and Sedimentation
  - Structural and Field Geology
- Germanic Languages
  - German Language
  - German Literature
  - German Teaching Emphasis
- History
  - American History
  - Modern European History
- Microbiology
  - Genetics
  - Microbiology
- Music
  - Music Education
  - Musicology
  - Music Theory
- Physics and Astronomy
  - Acoustics
  - Astrophysics
  - Atomic Physics and Spectroscopy
  - Biophysics
  - Nuclear Physics
  - Planetary and Space Physics
  - Plasma Physics
  - Solid-State Physics
  - Theoretical Physics
- Psychology
  - Clinical Psychology
  - General Psychology
  - Instructional Psychology
- Sociology
  - Family Sociology
  - Social Organization
  - Social Psychology
- Spanish and Portuguese
  - Spanish Language
  - Spanish Literature
  - Spanish Teaching Emphasis
- Speech and Dramatic Arts
  - Dramatic Arts
- Zoology
  - Entomology
  - Genetics
  - Zoology
- Doctor of Education**
- Business Education
- Educational Administration
  - Community College Administration
  - Community School Administration
  - Public School Administration
- Educational Psychology
  - Counseling and Guidance
  - Educational Psychology
  - Special Education
- Elementary Education
  - Elementary Curriculum and Instruction
- Physical Education
  - Analysis of Human Motions
  - Professional Leadership
- Secondary Education and Foundations
  - Secondary Curriculum and Instruction
- Master of Arts**
- Anthropology and Archaeology
  - Historic Archaeology
  - Prehistoric Archaeology
- Art
  - Design
  - Painting and Sculpture
- Asian Studies
- Chemistry
  - Chemistry Teaching Emphasis
- Classical, Biblical, and Middle Eastern Languages
  - Greek
  - Latin
  - Latin Teaching Emphasis
- Communications
  - Educational Psychology
  - Counseling and Guidance
- Educational Psychology
  - Instructional Media
  - School Psychology (interdepartmental)
  - Special Education
- Elementary Education
  - Elementary Curriculum and Instruction
  - Reading Specialist
- English
  - American Literature
  - English Language
  - English Literature
- French and Italian
  - French Language
  - French Literature
  - French Teaching Emphasis
- Geology
  - Earth Science Teaching Emphasis
- Germanic Languages
  - German Language
  - German Literature
  - German Teaching Emphasis
- History
  - Asia (with Asian Studies)
  - American History
  - Modern European History
  - Latin America (with Latin American Studies)
  - History Teaching Emphasis
- Humanities and Comparative Literature
  - Comparative Literature
  - Humanities
- Latin American Studies
- Linguistics
  - Applied Linguistics
  - Teaching English as a Second Language (TESL)
  - Theoretical Linguistics
- Mathematics
  - Mathematics
  - Mathematics Education
- Music
  - Music Education
  - Musicology
  - Music Theory
- Organizational Behavior
- Physical Education
  - Analysis of Human Motions
  - Professional Leadership
- Physics and Astronomy
  - Physics Teaching Emphasis
- Political Science
- Recreation Education
  - Community School Leadership
  - Municipal Recreation Administration
  - Outdoor Recreation
  - Therapeutic Recreation
- Spanish and Portuguese
  - Portuguese Language
  - Portuguese Literature
  - Spanish Language
  - Spanish Literature
  - Spanish Teaching Emphasis
- Speech and Dramatic Arts
  - Dramatic Arts
  - Speech
- Master of Science**
- Agriculture
  - Agribusiness
  - Agronomy
  - Animal Science
  - Horticulture
- Botany and Range Science
  - Biological Science Education
  - Botany
  - Genetics
  - Range Science
- Business Education
  - Distributive Education
  - Office Education
- Chemical Engineering Science
  - Combustion
  - Environmental Control
  - Fluid Mechanics (with Mechanical Engineering)
  - Nuclear Engineering (with Physics)
  - Thermodynamics

- Chemistry
  - Analytical-Physical Chemistry
  - Biochemistry
  - Inorganic Chemistry
  - Organic Chemistry
  - Physical Chemistry
- Child Development and Family Relationships
  - Child Development
  - Family Relationships
  - Marriage and Family Counseling
- Civil Engineering Science
  - Highway Engineering
  - Water Resources and Environmental Engineering
  - Structures and Structural Mechanics
- Computer Science
  - Information Systems
  - Formal Languages and Automata Theory
  - Machine Organization
  - Programming Systems
  - Theory of Computation
- Economics
- Electrical Engineering Science
  - Communications Engineering
  - Computer Engineering
  - Nuclear Engineering
  - Solid-State Electronics
- Food Science and Nutrition
- Geography
  - Cartography
  - General Geography
  - Urban and Regional Planning
- Geology
  - Economic Geology
  - Mineralogy, Geochemistry, and Petrology
  - Paleontology
  - Stratigraphy and Sedimentation
  - Structural and Field Geology
- Health Sciences
  - Community Health
  - Health Education
  - Safety Education
- Home Economics Education
- Mathematics
- Mechanical Engineering Science
  - Applied Mechanics
  - Machine Design
  - Manufacturing
  - Nuclear Engineering (with Physics)
  - Thermosciences
- Microbiology
  - Genetics
  - Medical Technology
  - Microbiology
- Physics and Astronomy
  - Acoustics
  - Astrophysics
  - Atomic Physics and Spectroscopy
  - Biophysics
  - Nuclear Physics
  - Planetary and Space Physics
  - Plasma Physics
  - Solid-State Physics
  - Theoretical Physics
- Psychology
  - School Psychology (interdepartmental)
- Sociology
  - General Sociology
- Speech and Dramatic Arts
  - Clinical Audiology
  - Speech Science
- Statistics
  - Applied Statistics
  - Theoretical Statistics
- Zoology
  - Biological Science Education
  - Entomology
  - Genetics
  - Zoology
- Master of Accountancy**
- Accounting
- Master of Business Administration**
- Business Administration
- Master of Communicative Habilitation**
- Speech and Dramatic Arts
  - Educational Audiology
  - Speech Pathology
- Master of Education**
- Educational Administration
  - Community School Administration
  - Elementary School Administration
  - Secondary School Administration
- Educational Psychology
  - Counseling and Guidance
  - Educational Psychology
  - Instructional Media
  - School Psychology (interdepartmental)
  - Special Education
- Elementary Education
  - Elementary Curriculum and Instruction
  - Reading Specialist
- Secondary Education and Foundations
  - Comparative and International Education
  - Secondary Curriculum and Instruction
- Master of Fine Arts**
- Art
  - Design
  - Painting and Sculpture
- Master of Engineering**
- Chemical Engineering Science
  - Combustion
  - Environmental Control
  - Fluid Mechanics (with Mechanical Engineering)
  - Nuclear Engineering (with Physics)
  - Thermodynamics
- Civil Engineering Science
  - Highway Engineering
  - Water Resources and Environmental Engineering
  - Structures and Structural Mechanics
- Electrical Engineering Science
  - Communications Engineering
  - Computer Engineering
  - Nuclear Engineering
  - Solid-State Electronics
- Mechanical Engineering Science
  - Applied Mechanics
  - Machine Design
  - Manufacturing
  - Nuclear Engineering (with Physics)
  - Thermosciences
- Master of Health Education**
- Health Sciences
  - Community Health
  - Health Education
  - Safety Education
- Master of Industrial Education**
- Industrial Education
- Master of Library Science**
- Graduate Department of Library and Information Sciences
- Library Science
- Master of Music**
- Music
  - Applied Music
- Master of Public Administration**
- Institute of Government Service
- Government Service
- Master of Recreation Education**
- Recreation Education
  - Community School Leadership
  - Municipal Recreation Administration
  - Outdoor Recreation
  - Therapeutic Recreation
- Minors are offered in the fields listed above in addition to the following fields:
  - Ancient Scripture
  - Art History
  - Basic Chemistry
  - Business Management
  - Church History and Doctrine
  - Philosophy
- Certificate Programs**
- Educational Specialist**
- Educational Administration
  - Public School Administration
  - Supervision

Educational Psychology  
 Counseling and Guidance  
 Special Education  
 Elementary Education  
 Elementary Curriculum and  
 Instruction  
 Reading Specialist  
 Secondary Education and Foundations  
 Secondary Curriculum and

Instruction  
 Teaching English as a Second Language  
 (TESL)  
 Linguistics  
 French  
 German  
 Portuguese  
 Spanish

## General Regulations

It is the responsibility of each student in the Graduate School to know and conform both to the following general regulations and to the additional requirements of his department. These general regulations may change from year to year. Students should consult the **Graduate School Catalog** each year to be aware of current regulations.

### University Standards

The maintenance of high standards of honor, integrity, and morality; of graciousness in personal behavior; of Christian ideals in everyday living; and the complete abstinence from alcohol and tobacco are required of every student while on the campus, at home, or wherever he may be as long as he is in student status. Registration signifies a student's willingness to conform to these standards. A copy of the BYU Code of Honor may be found on page 56 of this catalog.

Any pronouncement of disciplinary measures made by the President of the University becomes a part of these regulations. Violations of these regulations make the offender liable to suspension from the University.

### Admission

Admission to the Graduate School is contingent upon the completion of the bachelor's degree or its equivalent.

Students of any race, creed, color, or national origin are accepted for admission to Brigham Young University provided they maintain ideals and standards in harmony with those of The Church of Jesus Christ of Latter-day Saints and meet the University's academic requirements.

Applications for admission may be obtained from the University Office of Admissions by a written request to the University Mail Answering Service, 268 UPB. Be sure to specify whether you desire a degree-seeking or a nondegree application.

A grade-point average of 3.0 is the minimum acceptable for regular degree-seeking status. Students with undergraduate grade-point averages of less than 2.5 are not eligible for admission on either degree-seeking or non-degree status.

In addition to academic qualifications, every student who is not a U. S. citizen must obtain clearance from the BYU International Office before being accepted.

Admission to the Graduate School is contingent upon acceptance in a particular department and program as a degree-seeking student. To be considered, applications must include each of the following items and be filed before the announced deadlines.

1. Fully completed application form
2. Nonrefundable application fee of \$15
3. Two official transcripts of all college work (including an unofficial copy from BYU)
4. Three letters of recommendation on the forms provided
5. Confidential interview form
6. Letter of intent
7. Letter requesting use of credit previously obtained (if any).

Each applicant is notified in writing by the Graduate School concerning his admission or nonadmission. Application deadlines are as follows (Some departments have other deadlines. Please see departmental information):

### Deadlines for Graduate School Applications

|                      | Degree      | Nondegree   | International Student |
|----------------------|-------------|-------------|-----------------------|
| Winter Semester 1974 | November 15 | December 10 | September 10          |
| Spring Term 1974     | March 10    | March 20    | January 10            |
| Summer Term 1974     | May 15      | May 30      | March 15              |
| Fall Semester 1974   | June 30     | July 15     | April 30              |
| Winter Semester 1975 | November 15 | December 10 | September 15          |
| Spring Term 1975     | March 10    | March 20    | January 10            |
| Summer Term 1975     | May 15      | May 30      | March 15              |

### Student Classification

#### Degree-seeking Status

1. **Regular.** Students who have met all prerequisites and are fully accepted by the academic department as ready to proceed with a regular graduate program in that department are placed on **regular** status.
2. **Provisional.** Students who lack prerequisites, language or tool preparation, or who have low grade-point records are placed on **provisional** status. Notice of provisions to be fulfilled is sent to the student with the acceptance form. Fulfillment of provisions as stipulated by the academic department automatically advances the student to regular status.

#### Nondegree Status

Registration of students with baccalaureate degrees on a nondegree basis is permitted for teacher certification and for taking classes of personal interest to the student. All auditors must be formally admitted and registered. Students of nondegree status must apply for admission through the University Office of Admissions.

Credit acquired at Brigham Young University while on a nondegree status or transfer credit from another accredited graduate school is not automatically a part of a degree program. Up to ten (10) semester hours of this credit may be included as part of a degree program if the student's advisory committee judges these hours to be part of a coherent program of study.

### Continuous Registration

Details of the registration and records procedures are outlined in the class schedule issued each semester by the University Office of Admissions and Records.

When a student is admitted to a degree program, it is expected that he will work continuously and will register in that program until all requirements are completed. Normally a student will register each semester for a minimum of two semester hours of credit in work which is filed as part of his approved graduate program. Each student must, in any case, meet the following minimum requirements:

1. Complete at least six hours of approved program credit during each academic year (September 1 to August 31) or pay an equivalent continuous registration fee.
2. Register for at least two hours of approved program credit during any semester or term in which University personnel are consulted or facilities are used.

If a student is suspended for failure to meet the continuous registration requirement, no more than ten semester hours of credit previously acquired may be applied towards a new degree program if the student reapplies.

Every international student must register for **nine** (9) credit hours each semester.



## Graduate Credit for Seniors

If, during the last semester of the senior year, a candidate for a baccalaureate degree finds it possible to complete all requirements for such a degree, he may register for graduate credit. A senior form provided by the Office of the Graduate Dean stating that all baccalaureate requirements are being met during the current semester must be signed by the appropriate undergraduate dean and presented to the dean of the Graduate School at the time of such registration. Normally, students requesting such permission will have previously applied for admission to a graduate degree program. Any who have not done so are urged to complete the application during that semester.

Three-year master's degree programs have been approved in accounting, physics, chemistry, and engineering. Under these programs, the departments are authorized to make a special arrangement in which a limited amount of graduate work is taken before the final semester of the senior year.

## Student Advisement

Every student accepted on a degree-seeking basis is assigned an academic sponsor (who is designated on the acceptance form). The student is expected to make immediate contact with his sponsor, stay in contact, and meet with the sponsor at least weekly during periods of regular enrollment. The sponsor's commission is to guide the student in his registration and individual study until such time as he is ready to proceed under the auspices of an advisory committee. This transition should take place during the first semester of registration.

The department chairman will appoint an advisory committee consisting of at least two persons for master's and educational-specialist committees and three for doctoral committees. Minor fields must be represented by a member of the advisory committee. The advisory committee is to direct the student through those experiences which will enable him to satisfy all requirements and examinations pertinent to his degree program.

## Student Programs

Immediately after the formation of the advisory committee and during the first semester of registration, the student should prepare and file his course outline (Form 3) in the Office of the Graduate Dean. This outline should reflect all prerequisites taken on provisional status, all tool subjects required, thesis credit, and all regular courses to be taken. This course outline must be completed under the direction of the advisory committee and signed by them.

As soon as possible after the formation of the advisory committee, the student should file an approved thesis or dissertation prospectus with the Office of the Graduate Dean. Project prospectuses are filed only when required by a department.

When there is a needed change in the student's program or committee, the change must be requested on official forms provided by the Office of the Graduate Dean to each department (Form 3b) and be approved by the student's advisory committee and the department chairman or graduate coordinator. The forms must then be forwarded to the Office of the Graduate Dean.

## Scholastic Standards

A grade-point average of 3.0 for all credit applying toward the degree is required of any student earning a degree in the Graduate School. An incomplete is considered a failing grade. No D credit can apply toward a graduate degree. A degree-seeking student (regular or provisional) whose grade-point average falls below 3.0 for a given semester shall be placed on academic probation. Two semesters on probation cause a student to be in jeopardy of suspension. **Incompletes must be made up during the next succeeding semester to have probationary status removed.** In order to remove probationary status, a student must submit an unofficial transcript or grade change to the Office of the Graduate Dean.

## Submission of Theses and Dissertations

All theses and dissertations (and projects in some departments) must be submitted to the graduation secretary. Form No. 6, Departmental Tentative Approval of Theses or Dissertations, signed by the committee, must accompany the thesis or dissertation. This form is to be obtained from the student's major department. Two signed copies of the abstract and an unofficial copy of the student's up-to-date BYU transcript must be submitted at this time.

When the thesis or dissertation has been checked for format by the dissertation secretary, the student is issued Form No. 7, Submission of Theses and Dissertations, for the purpose of (1) accepting the thesis or dissertation as it is; (2) rejecting the thesis or dissertation, which would then necessitate a retyping—to be resubmitted prior to scheduling the oral examination; or (3) accepting the thesis or dissertation contingent upon the correction of minor format errors—to be made prior to submitting the thesis or dissertation to the library for binding. The required corrections will be listed on Form No. 7, along with any changes necessary as a result of the oral examination.

### Oral Examinations

Normally, two weeks must elapse between the time of the presentation of the thesis to the dissertation secretary and the date of the oral examination. The student may petition to have this time reduced for extenuating circumstances, **but in no case may this period be less than one week.**

Oral examinations will not be administered during any period in which the University is not in regular session.

Following the final oral examination, changes recommended in the thesis or dissertation, both by the dissertation secretary and the examining committee, must be made. The original and three copies (four copies for students in the CDFR Department) of the thesis or dissertation must be submitted to the library for binding.

When the Graduate School receives the binding receipt from the library, the student becomes a candidate for graduation.

## Graduation

A student who contemplates graduation should secure from the Office of the Graduate Dean an Application for Graduation form and pay the graduation fee of \$20 at the Treasurer's Office. This should be done before submitting the thesis or dissertation to the Office of the Graduate Dean for approval as a basis for scheduling the final examination.

All graduating students are encouraged to attend commencement and convocation exercises. Students not attending commencement must notify the Office of the Graduate Dean of the address to which their diploma should be sent.

### Credits Certified by Special Examination

Under certain circumstances graduate students who are working in degree programs at BYU may have the need to have certain of their credits certified by special examination. It is the policy of the Graduate School that students must pay for these examinations. Payment must be made in advance in an amount equivalent to ordinary registration fees for the amount of credit concerned. This arrangement applies specifically to the following situations:

1. Graduate credit taken at Brigham Young University, or another accredited university in the United States, which has become outdated under the time limit regulations.
2. Graduate credit which a student desires to transfer from a non-accredited institution or from a foreign university.
3. Challenge of credit on the course outline for students who already have a good background in a required subject.

Applications for these special examinations can be obtained in the Office of the Graduate Dean.

### **Time Limits**

Graduate credits are applicable toward a master's degree only within a five-year period from the time they are received.

All academic credit applicable toward the Educational Specialist Certificate, excluding credit applying toward a master's degree, must be completed within a period not to exceed six years from the date the master's degree was received.

All academic credit applying toward the doctor's degree, exclusive of that earned in completion of the master's degree, must be completed within a period not to exceed eight years.

All requirements for a degree must be complete by the day of August commencement in the year in which time limits expire.

### **Student Load**

Normal load for a student who is not working is twelve units per semester or six units per term. Graduate assistants must be registered for a minimum of six units per semester or three units per term.

### **Graduate Awards**

Further information concerning graduate awards is available through the Graduate Awards Office, B-336 ASB.

#### **BYU Awards**

Teaching and research experience are seen as integral and indispensable parts of graduate student programs. For this reason, graduate awards given by Brigham Young University are in the form of teaching and research assistantships and internships. These awards are administered through the academic departments of the Graduate School and vary according to the requirements and opportunities of the different disciplines. The most remunerative of these awards totals \$3,400 per academic year. Application for these awards should be made through the chairman of the academic department.

Students receiving BYU awards must register during the regular registration period to claim their awards.

#### **American Indian Awards**

Special graduate awards are available for American Indian students. For further information, contact the Graduate Awards Office, B-336 ASB.

### **Student Loans and Financial Aids**

Limited funds are available to help students remain in school when financial emergencies have arisen and personal or family resources are not available.

#### **Short-Term Loans**

Short-term loans are available for emergency assistance for tuition, books, fees, and other school expenses to full-time day students. These loans are made in small amounts for immediate requirements. Repayment is required within the current semester.

#### **Church Student Loan Fund**

The Church of Jesus Christ of Latter-day Saints makes aid available through a long-term loan program by which loans may be made to worthy full-time LDS students who are in critical financial need for tuition, books, fees, and other school expenses. Loans may be made each year in amounts usually not in excess of \$500 for graduate students. The student may be permitted to delay making repayment until after he discontinues his full-time status at BYU.

#### **Application**

Information regarding financial aids and application forms is available in the Office of Student Financial Aid, A-41 ASB.

## Master's Degree

### Amount and Distribution of Credit

The master's degree requires a minimum of thirty semester hours of credit.

The master's thesis must carry a minimum of six hours, but no more than six hours of thesis credit may count toward the thirty-hour minimum. The thesis credit shall include such disciplines as review of the literature, all thesis research, and the writing of the thesis. Registration for thesis credit and work on the thesis must be concurrent.

A department, after authorization by the Graduate Council, may function under Option I and/or Option II.

#### Option I

At least fifteen semester hours, exclusive of thesis, must be in the major field and at least nine semester hours in a minor field approved by the major department. The minor department must approve the specific courses which constitute the minor.

#### Option II

Thirty hours must be in the major field or in direct support of the major field. Under this option at least twelve hours must be in the major field of course work in a regular thirty- to thirty-two-hour program.

A graduate student may apply toward requirements for the master's degree a limited amount of credit earned by taking certain upper-division undergraduate courses at BYU which have been approved by the graduate advisory committee at the time of registration or appear on the course outline of a degree-seeking student. At least twenty hours of the credit for the master's degree must be in the 500 series or above.

A minimum grade-point average of 3.0 is required in all work applying toward the degree.

Neither lower-division nor correspondence credit can be applied toward a graduate degree.

### Transfer and Nondegree Credit

Transfer credit (graduate credit only, from another accredited university) and/or nondegree credit acceptable to a student's advisory committee and not in excess of a total of ten semester hours may be applied toward a graduate degree at BYU. Forms for petitioning for such transfers (Form 3b) are available in the major department if the course outline is already on file in the Office of the Graduate Dean. All transferred credit must be of grade B or better. At least twenty semester hours toward the master's degree must be taken on the Provo campus in all programs except education and industrial education.

## Educational Specialist Certificate

### Admission Requirements

Students seeking admission to the educational specialist certificate program must present evidence of a valid teaching credential, completion of at least two years of teaching or administrative experience, and a master's degree. The Graduate Record Examination (Aptitude and Advanced Test in Education) is prerequisite to admission as a regular degree-seeking student.

### Academic and Residence Requirements

The Educational Specialist Certificate requires 60 semester hours of work beyond the baccalaureate degree. Degree programs are designed to meet the requirements of the Utah State Board of Education for state endorsements to the Pro-



fessional Certificate. Twenty-four semester hours and two full-time registrations must be completed on the University campus. Advisory committees, appointed following the admission of the student to the certificate program, will assist students in the preparation of a course of study and guide the student in the preparation and writing of the field project.

## Doctor of Education Degree

### Admission Requirements

For admission to degree-seeking status as a doctoral applicant, the student must have completed twenty-two semester hours of education, or possess certification as a teacher, and must have completed two years of successful professional experience. Successful completion of a three-hour seminar is prerequisite to admission on regular status.

### Classification of Doctoral Students

Students seeking the Doctor of Education degree are classified as **degree applicants** and **degree candidates**. The student becomes a doctoral applicant upon recommendation by his department chairman or graduate coordinator. The department will normally require an examination or other screening procedure prior to this recommendation. The student is admitted to candidacy after meeting conditions for admission to candidacy and before registering for the dissertation and internship.

### Academic and Residence Requirements

The equivalent of a minimum of three years of full-time study beyond the bachelor's degree is required. Full-time study is defined as at least nine hours in course work or the equivalent in research per semester. The advisory committee has authority to decide what work will be accepted to meet these requirements. At least two consecutive semesters (or two consecutive summers of work for members of organized groups), during each of which a student is registered for not less than nine semester hours, must be taken on the Provo campus.

A minor must consist of at least twelve semester hours of approved credit.

### Tool Requirement

There is no foreign language requirement. The student must demonstrate proficiency in statistics to the satisfaction of the advisory committee.

### Admission to Candidacy

To be eligible for advancement to candidacy, the student must satisfactorily pass the final qualifying written examination and submit a dissertation prospectus approved by his doctoral advisory committee. The student has the responsibility for filing with the Office of the Graduate Dean Form No. 5, Request for Admission to Candidacy, when all conditions for candidacy have been met. Notice from the Office of the Graduate Dean then admits the student to candidacy for the degree.

### Project or Dissertation

A minimum of twelve hours of dissertation or project credit must be attained. An oral examination on the student's project or dissertation must be completed successfully by each candidate.

# Doctor of Philosophy Degree

## Classification of Doctoral Students

Students admitted to the Doctor of Philosophy degree program are classified as **degree applicants** and **degree candidates**. The student becomes a doctoral applicant upon recommendation by his department chairman or graduate coordinator. The department will normally require an examination or other screening procedure prior to this recommendation.

## Academic and Residence Requirements

A full semester of residence credit is defined as at least nine hours in course work or the equivalent in research per semester. The advisory committee has authority to decide what work will be accepted to meet these requirements. Ordinarily two years of full-time course work or research or its equivalent are to be taken on the Provo campus. At least two consecutive semesters of work, during each of which a student is registered for not less than nine semester hours, must be taken on the Provo campus. These two semesters are in addition to any residence completed in a master's program.

A minor must consist of at least twelve semester hours of approved credit.

The doctoral degree is awarded to a student when he has demonstrated his personal competence at an acceptable level in an appropriate field of endeavor. While successful passing of University course work contributes to the student's development of this competence, such activities alone do not assure him of reaching an appropriate level. Therefore, no minimum number of formal course credit hours can be identified as guaranteeing competence at the doctoral level.

Normally, a minimum of six semesters of full-time study beyond the baccalaureate degree or four semesters of full-time study beyond the master's degree is required for the Ph.D. or Ed.D. degrees. Attainment of skill in language or other tool subjects is independent of this minimum requirement.

The graduate student gains competence by means of many types of activity. Most of these involve services provided by the University, such as faculty time for guidance and evaluation, library resources, and office and laboratory spaces and facilities. It is therefore necessary that the student compensate the University for a part of this cost. While different programs involve various lengths of training, in no case will the doctorate degree be awarded until the student has paid to the University registration fees equivalent to six full-time semesters; or, if the student submits acceptable transfer graduate credit, registration fees will be reduced, but in all cases fees paid must be equivalent to a minimum of four semesters of full-time study.

## Tool Requirement

For the academic areas in which a significant body of subject matter related to the pursuance of the Ph.D. degree is published in languages other than English, it is expected that doctoral candidates will include foreign languages as a necessary prerequisite to study in their respective fields. Where justified by the subject matter of the major area, however, a tool subject replacement for foreign language may be made.

In any case, the foreign language or the tool subject requirement should be considered a prerequisite to regular status as a degree-seeking student and is not to be considered as part of regular course work for accumulating credit hours in the major or minor fields of study.

Any of the four options below will satisfy the language-tool subject requirements. Departments specify which requirement or requirements are appropriate for their respective areas as approved by the Graduate Council.

### Tool Requirement I: Single-Language

The student shall be required to demonstrate a thorough familiarity with French, German, Russian, or Spanish, or another foreign language that may be

recommended by the department and authorized by the Graduate Council. Fulfillment of this requirement will be manifest through examination that will demonstrate (1) the candidate's ability to translate literature in the field of specialization with a competent level of speed and accuracy and (2) the candidate's ability to communicate orally in the language with acceptable facility.

In lieu of a special examination that will demonstrate adequate use of the foreign language selected, this requirement can be met by the completion, with an average grade of B (3.0) or higher, of a minimum of twenty-two semester hours in the language. Students familiar with the language may be able to earn the first sixteen of the total twenty-two semester hours' credit by special examination, thereby qualifying them to register for the remainder of the credit from courses 321, 415, and 416, or their equivalent.

In either case, competency must be certified by the language department involved.

#### **Tool Requirement II: Two-Language**

Any one or a combination of the following provisions meets the two-language requirement. One of the languages must be French, German, Russian, or Spanish. The second language may be one recommended by the department and authorized by the Graduate Council.

1. Successful completion of the ETS examination (given only in French, German, Russian, or Spanish). Dates of and application for these examinations are made with the BYU Testing Service, B-268 ASB.
2. Successful completion of the language course 95R in either or both acceptable languages (offered only in French, German, or Spanish).
3. Successful completion of sixteen semester hours of credit in the foreign languages that are approved by the major department and the Graduate Council for the degree program. An average grade of B (3.0) must be attained.

#### **Tool Requirement III: One Language and One Tool Subject**

This requirement may be met by including one of the languages in Option II plus eight to ten credit hours in any combination from the departments of Statistics, Computer Science, or Mathematics as approved for each department by the Graduate Council. Hours in mathematics would be beyond Math. 111.

#### **Tool Requirement IV: Single Tool Subject**

This option would normally consist of an integrated program of eighteen to twenty-one semester hours of undergraduate studies in the departments of Mathematics, Statistics, and Computer Science in any combination, as approved for each department by the Graduate Council, showing systematic tool development. Hours in mathematics would be beyond Math. 111.

### **Comprehensive Examination**

The student must pass a written comprehensive examination in his doctoral field under the direction of his major department. The minor department will be responsible for examining the student in the minor area. This examination will normally be given at the end of the second year of graduate study. Departments may also require an oral portion of the comprehensive examination.

### **Admission to Candidacy**

Satisfactory completion of the language requirement and the comprehensive examination, submission of the Application for Graduation form and payment of graduation fee, and submission of a dissertation prospectus, approved by an advisory committee, are necessary for admission to candidacy for the Doctor of Philosophy degree.

The student has the responsibility of filing Form No. 5, Request for Admission to Candidacy, with the Office of the Graduate Dean when all conditions for admission to candidacy have been met. Notice by the dean of the Graduate School then admits the student to candidacy for the degree.



## Dissertation

A minimum of eighteen hours of dissertation credit (799) must be attained. An oral examination on the dissertation must be completed successfully by each candidate.

# General University Services

## University Library

The Harold B. Lee Library includes over one million bound volumes and extensive collections of manuscripts, recordings, pamphlets and titles on microform. A large selection of professional journals and other current serials, as well as local, regional, and national newspapers, is also available. The library is a depository for United States, United Nations, Mexican, and Canadian government documents and regularly receives publications of state and local governments.

The general library facilities are available to students, faculty, alumni, and other interested persons. Regularly enrolled students present their identification cards to borrow books. Others may obtain a permit from the circulation librarian. The library is open during the college year from 7:00 a.m. to 11:00 p.m. Monday through Saturday. (Exceptions for Spring and Summer terms will be announced.)

The general collection and subject reference materials are available on open shelves on four of the five levels—two below and two above the ground floor. The general reference collection, the public catalog, the circulation desk, the administrative offices, and the reserve department are located on the ground level. Study space is interspersed with stack areas on each floor. An information booklet is available at the general reference desk to assist in the use of these facilities.

The special collections of the library, many of which are confined to specific subject areas, are located on the fourth level. Many of these fine collections are gifts to the library from individuals whose interests have led them to devote many years to their acquisition. The books and other materials from the special collections area are not available for general circulation.

The library also provides extensive services for the use of nonprint media. These include the Educational Media Services Program for the use of films and video productions and the Learning Resource Centers for both automated and manual use of tape and disc recordings, video programs, slides, and filmstrips.

The facilities of other libraries operated by the LDS Church and the resources of Utah state college and university libraries are also available to students of Brigham Young University. The Genealogical Society Library in Salt Lake City contains approximately one hundred thousand books and over eight hundred thousand rolls of microfilm. These include family histories; genealogies; biographies and autobiographies; military records; cemetery inscriptions; town, county, and state histories of the United States; and both local and national histories of other nations. The Utah Valley Branch Genealogical Library, operating under the general direction of the society, has its headquarters at the Harold B. Lee Library.

Facilities of the library of the Church Historian's Office are available by arrangement to advanced students for research. The office is located in the new Church office building in Salt Lake City and is open from 8:00 a.m. to 5:00 p.m. Monday through Friday. Its collections contain publications of the Church, periodicals of the various auxiliary organizations, reports and histories of the various missions, general Church historical records, biographies of Church leaders, and other pertinent published and archival material.

## Evening Classes

Regular graduate credit is given for evening classes. Day students may enroll in evening classes on their regular registration card by picking up cards marked "Section 90." Class schedules, listing classes and giving detailed information about all procedures, are available free of charge upon request.



Evening class registration should not be confused with official admission to the Graduate School. It is the student's responsibility to seek admission to the Graduate School. Evening class registration for community students may be completed by mail. Check the class schedule for complete information.

### Off-Campus Centers

The University has established several off-campus centers for continuing education:

BYU-California Center, 12550 Brookhurst Avenue, Suite D, Garden Grove, California 92640.

BYU-Ogden Center, 555-24th Street, Ogden, Utah 84401.

BYU-Ricks Center, 241 South 1st West, Rexburg, Idaho 83440, and 2630 North Yellowstone Highway, Idaho Falls, Idaho 83401.

BYU-Salt Lake Center, 401 12th Avenue, Salt Lake City, Utah 84103.

Additional classes are offered in other geographical areas, administered by the campus-based department of Off-Campus Lectures and Courses.

### Registration Requirements

Any individual with a baccalaureate degree may properly register for graduate classes. A maximum of ten hours of credit may be accumulated at the centers prior to the time of admission to the BYU Graduate School.

### Application for Admission

A student desiring to enroll in a graduate program at BYU must take the initiative and be admitted to the Graduate School on a degree-seeking basis. Applications and letter forms are available at each center. Entrance examinations are also given periodically at the centers or may be taken at BYU in Provo.

### Computer Services

Computer Services provides extensive computing and card-processing (EAM) facilities to all faculty, staff, and students. In addition to equipment, extensive computer library programs and experienced personnel are available to help users with their particular problems. Academic users should contact the Assistant Director of Computer Services—Instructional, 403C ESTB, Ext. 3288. All users pay the costs of Computer Services operations according to approved funding-control procedures.

There are at present eight major computing centers on campus with about twenty computers of various sizes:

1. An IBM 360/65 installation in the Mathematical Sciences/Computer Building includes an IBM 360/65 with all basic input/output equipment, including remote terminals in the administrative and academic areas. This equipment is augmented by two NOVA 800 minicomputers.
2. A PDP-10 time-share system, 425 ESTB, will eventually include 50 remote terminals located to fill diverse and extensive requirements.
3. The Electrical Engineering Department has a NOVA 800, a CIP-2200, an HP-2100, and a PDP-11 in 425 ESTB to support electrical-engineering research and laboratory work.
4. An IBM 7030, in 142 ESC, includes card and tape input and printer and tape output. This installation also includes a PDP-15 with graphic terminal capability.
5. The Technology Center, 300 ESTB, includes a PDP-8/1 with card and paper tape input, paper tape output, and six remote terminals. In 115 SNLB there is a PDP-8/1 with one Tektronix graphic screen and sensor probes attached for on-line real-time control of cutting tools.
6. The Psychology Department has a PDP-8 in its experimental lab, 1303 SFLC, which controls on-line experiments.
7. The Computer Science Department has a PDP-11 in 237 MSCB for use by computer science students.

8. The Chemistry Department has a PDP-11 for experiment control and data acquisition and for preliminary data analysis.

EAM services include open-shop unit record machines in 156 MSCB; open-shop keypunch machines in 142, 145, and 199 MSCB and 62 JKB; and closed-shop keypunch and data entry devices in 154 MSCB. Optical scanning equipment is available through Operations, 163 MSCB, and the Testing Department, B-268 ASB. Consulting services are available at 146 MSCB, 424-A ESTB, and 139 ESC. Hours are posted in each consulting room. Short "quickie" classes are conducted regularly in various basic computer subjects.

The Computer Services **User's Guide** is available in the BYU Bookstore.

## Statistical Services

Statistical Services is a cooperative effort among Computer Services and the departments of Statistics and Mathematics and is designed to assist with those phases of research projects that require statistical design and analysis, numerical analyses, or special computational techniques.

All research can be more productive if the initial planning includes adequate attention to the proper design of the experiment or survey and the choice of an appropriate sample size. Proper execution of these two steps significantly improves the chances of the research goals being met. In addition, appropriate analyses and interpretation of the experimental results are vital to well-executed research projects. Statistical Services provides assistance in all of these areas. To obtain maximum benefit this service should be used in the formative stages of research projects, since the validity of final inferences is greatly dependent upon the experimental or sampling design.

These services are available by appointment through the Department of Statistics, 204 MSCB.

## Placement Center

The Placement Center, located in the Abraham O. Smoot Administration and General Services Building, assists graduating students and alumni in finding desirable positions in their fields in business, industry, government, and education. This office works in close cooperation with deans and department chairmen.

The placement service includes a placement library where interested students may find books, articles, magazines, and brochures that will acquaint them with employers in whom they may be interested and also books and pamphlets that contain advice on such matters as how to conduct oneself in an interview, how to write effective letters of application, how to find employment, etc.

All students are urged to register with the Placement Center early in the school year in which they will complete requirements for a degree. Early registration will enable that office to give the most effective possible assistance to each graduate seeking employment.

## Student Employment

In the Employment Office assistance is given to needy students in finding part-time employment. This includes help not only in placing students in positions on the University campus, but also in finding part-time employment off campus.

In order that students may adequately pursue their academic work, it is suggested that they devote as much time as possible to their studies and not attempt to work also. When a student must work in order to supplement his college funds, he should be aware that there is a maximum limit of twenty hours per week that he may work on campus.

Students needing employment are urged to register with the Employment Office as soon as possible after they arrive in Provo and are available for work. Need weighs most heavily in deciding who shall receive leads for jobs, but hours available and required skills are also important considerations. The best schedule for which part-time work can be arranged is one where the free hours (a block of three to four hours) are in consecutive order at the same time

each day. Inasmuch as the number of students seeking part-time work is very high, those whose need is great are requested to report periodically at the Employment Office after filing initial application.

Students from foreign countries are required to obtain a work permit before they may take employment. Such students may receive assistance in obtaining the necessary permit from the international student adviser.

## Security and Traffic

BYU Security is a protective agency established for the benefit of students and faculty and staff members. The Security Office maintains effective liaison with the local police department and is entrusted with the proper enforcement of campus rules and regulations. All matters concerning security or requiring police action should be referred to this office. Another major responsibility of BYU Security is the control of campus vehicle traffic and parking.

The Security Office offers a variety of other services to students and staff members, including the taking of fingerprints for teaching certificates, government jobs, and ROTC. In addition, an ambulance service is maintained in co-operation with the health center.

### Automobile Registration

Every BYU student who expects to own, maintain, possess, drive, or store a motor vehicle in or about the city of Provo while the University is in session must register that vehicle with the Security Office within two school days after bringing it to the Provo area. The registration decal is issued without charge. It is for identification purposes only and does not entitle the holder to parking privileges on campus until after 4:00 p.m.

Brigham Young University maintains a zoned parking system, and students who wish to park their vehicles on campus during the day must obtain a parking permit. Upper-class permits for juniors, seniors, and graduate students are \$12. Lower-class permits—available for all students—are \$6.

To obtain a parking or registration decal, the following must be presented at the Security Office, B-69 ASB, or at registration:

1. Home-state vehicle registration certificate
2. BYU activity card
3. The appropriate fee (none for registration only)
4. The name of the company with which the vehicle is insured

For further details regarding traffic rules and regulations, the **Traffic and Parking Regulations** booklet may be obtained at no charge from the Security Office.

### Out-of-State Students

Every student who is a resident of Utah or of a state other than those listed below must have a Utah driver's license if he wishes to drive in Utah. The following states have entered into a compact, and a driver's license from any of these is valid in all the others:

|            |             |               |
|------------|-------------|---------------|
| Alabama    | Indiana     | New Mexico    |
| Arizona    | Iowa        | New York      |
| Arkansas   | Kansas      | Oklahoma      |
| California | Louisiana   | Oregon        |
| Colorado   | Maine       | Tennessee     |
| Delaware   | Mississippi | Utah          |
| Florida    | Montana     | Virginia      |
| Hawaii     | Nebraska    | Washington    |
| Idaho      | Nevada      | West Virginia |
| Illinois   | New Jersey  |               |

Students from out of state who do not have Utah license plates on their cars may obtain a nonresident permit for their vehicles as long as their main purpose for being in Provo is education. Full-time employees of the University or students whose wives are full-time employees do not qualify; they must

purchase Utah plates and pay Utah property taxes on their vehicles. Either a nonresident permit or Utah license plates must be obtained immediately upon registration at the University. To obtain a nonresident permit, the student must present the following at a Security station:

1. Home-state vehicle registration certificate
2. Proof of current safety inspection from Utah or home state
3. Fifty cents
4. BYU activity card

### Lyceums and Forums

Almost since its founding Brigham Young University has been bringing to its students distinguished men and women in the arts and letters. The lyceums, usually evening programs, are of cultural value. Forum assemblies feature speakers and artists who can offer students a better understanding of our contemporary civilization.

## University Fees

The University reserves the right to change these figures without notice.

All students who register will be expected to pay tuition and fees prior to or at the time of registration. Students are held responsible to pay the correct tuition and fees.

Approximately 70 percent of the cost of operating the University is paid from the tithes of the LDS Church. Therefore, students who are active Church members, or their families, already have made a monetary contribution to the operation of the University. To equalize this burden somewhat it is necessary to charge nonmembers a higher tuition. This disparity is similar to the higher tuition that state universities charge to nonresident students. Even the higher total payment, however, does not cover the total educational cost of nonmembers of the Church.

### Tuition and General Fees

|  | Per Semester<br>(Fall or Winter) |           | Per Term<br>(Spring or Summer) |           |
|--|----------------------------------|-----------|--------------------------------|-----------|
|  | LDS Member                       | Nonmember | LDS Member                     | Nonmember |
| <b>Law School Students</b>                               | \$525.00                         | \$787.00  | \$260.00                       | \$390.00  |
| <b>MBA, MPA, and Master of<br/>Accountancy Students:</b> |                                  |           |                                |           |
| Full-time  |                                  |           |                                |           |
| Semester   |                                  |           |                                |           |
| (over 8 credit hours)                                    | 400.00                           | 600.00    |                                |           |
| Term (over 4 credit hours)                               |                                  |           | 200.00                         | 300.00    |
| Part-time  | 20.00                            | 30.00     | 20.00                          | 30.00     |
|  | Plus \$40                        | Plus \$60 | Plus \$40                      | Plus \$60 |
|  | per hour                         | per hour  | per hour                       | per hour  |
| <b>Other Graduate School Students:</b>                   |                                  |           |                                |           |
| Full-time  |                                  |           |                                |           |
| Semester   |                                  |           |                                |           |
| (over 8 credit hours)                                    | 320.00*                          | 480.00    |                                |           |
| Term (over 4 credit hours)                               |                                  |           | 160.00*                        | 240.00*   |
| Part-time  | 10.00                            | 15.00     | 10.00                          | 15.00     |
|  | Plus \$32                        | Plus \$48 | Plus \$32                      | Plus \$48 |
|  | per hour                         | per hour  | per hour                       | per hour  |
| <b>*Nonrefundable Overload Fee</b>                       | 15.00                            | 15.00     | 15.00                          | 15.00     |
|  | Per hour                         | Per hour  | Per hour                       | Per hour  |
|  | over                             | over      | over                           | over      |
|  | 16 hours                         | 16 hours  | 8 hours                        | 8 hours   |



A fraction of an hour is, for fee assessment purposes, counted as a full credit hour.

The charge for noncredit courses or for auditing courses is the same as for credit courses. Noncredit courses taken by part-time students will be assessed on the basis of hours involved in lecture classes. For example, three hours of lecture a week would be considered three semester hours and would be charged for accordingly. Therefore, if a student were taking seven credit hours plus a non-credit class involving two or more lecture hours per week, he would be considered a full-time student and must register as a full-time student. For courses in which no lecture hours are involved—for example, dissertations and theses—tuition and fees will be charged based on hours being carried during the semester, as determined by the supervising professor.

All graduate students who are not regularly registered but continue to use University services or facilities (including consultation with a major professor) will pay the minimum tuition equivalent to two semester hours during each semester in which University services or facilities are used.

#### **Admission Application Fee**

A \$15 nonrefundable application fee must accompany the admissions application, both to be submitted by specified deadline dates.

#### **Late Registration Fee—Semester**

Late registration fees are assessed all full-time and part-time students for failure to complete registration on scheduled dates. No exception is made, regardless of the reason for being late.

1. First five regular school days following the scheduled registration date ..... \$ 5.00
2. After the fifth day following scheduled registration date ..... 10.00

Any student whose check is dishonored by his bank will be charged a handling fee of \$5. If the check was for tuition, there will be an additional charge of the late fee in effect at the time the check is redeemed.

#### **Refunds—Semester**

In the event of withdrawal by a student, a refund will be made on the basis of a charge of \$10 (\$5 for a part-time student) even though the student does not complete registration or attend school, plus a per-day charge of 3 percent of the total tuition and fees paid or payable for the semester. The days charged for will be the school days beginning with the first day of the semester in which classes were held following the date on which the student registered, to the day on which the student reported his withdrawal to the Office of the Graduate Dean, both days inclusive.

Late fees are not refundable.

Any refund due a student because of withdrawal from school will be made only by check, through the mail, three weeks from the date on which the student reported his withdrawal and surrendered his receipt or activity card to the Office of the Graduate Dean.

No refund will be granted to a student who is requested to withdraw for scholarship or other causes.

No refund will be made after August 31 of the school year in which payment was received by the University.

#### **Miscellaneous General Fees and Fines**

|  |             |
|--|-------------|
| Graduation fee, master's or doctor's degree (only 50 percent re-funded if degree is not obtained) .....  | \$20.00     |
| Graduate student service fee (for graduate students using University facilities without formal registration for University classes) per semester ..... | 2-hour rate |

|  |                                  |
|--|----------------------------------|
| Identification photo .....   | 2.00                             |
| Change of registration fee (for each change slip presented after the first two weeks of each semester) .....   | 5.00                             |
| Change of grade fee (unless the change is the responsibility of the University) .....  | 3.00                             |
| Graduate Special Examination<br>To update credit and/or transfer credit from a nonaccredited institution or from a foreign university whose academic standards are not known to the faculty at BYU. (See page 41, "Credits Certified by Special Examination.") ..... |                                  |
| Examination, repeat foreign language, for advanced degree .....  | 10.00                            |
| Duplicate activity card .....  | 4.00                             |
| Spouse activity card (nonrefundable) per semester .....  | 5.00                             |
| Transcript fee .....   | 1.00                             |
| (\$1.00 for first copy on every order, plus \$.50 for each additional copy)  |                                  |
| Automobile and motorcycle registration and parking fee:*   |                                  |
| Zone B   |                                  |
| Fall and Winter semesters .....  | 12.00                            |
| Winter semester only .....   | 6.00                             |
| Spring and Summer terms .....  | 6.00                             |
| Summer term only .....   | 3.00                             |
| Zones C and D  |                                  |
| Fall and Winter semesters .....  | 6.00                             |
| Winter semester only .....   | 3.00                             |
| Spring and Summer terms .....  | 3.00                             |
| Summer term only .....   | 1.50                             |
| *Registration is mandatory and no fee is charged if student elects NOT to park on campus.  |                                  |
| Bicycle registration (Provo City licence) .....  | 3.00                             |
| Traffic violation fines .....  | Variable. according to violation |
| Thesis binding (4 copies) .....  | 11.00 to 15.00                   |
| Hold placed on credits for unpaid bill .....   | 2.00                             |
| Records search fee .....   | 1.00                             |

### Fees for Instruction in Music and Speech

For fees in special private instruction in music and speech see the general catalog, University Fees section. For fees in special speech consultation contact the speech clinic.

|                   |         |
|-------------------|---------|
| Recital Fee ..... | \$35.00 |
|-------------------|---------|

### Fees for Departmental Facilities and Services

|   |         |
|---|---------|
| Aerospace Studies (all AFROTC students) .....   | \$ 7.00 |
| Military Science (all Army ROTC students) ..... | 7.00    |
| Education 578R*, 673—4 credit hours .....       | 25.00   |
| Education 578R*, 673—2 credit hours .....       | 15.00   |

\*For these education fees all students must pay a \$10 nonrefundable deposit with application, the balance of the fee to be paid at the time of registration. An additional \$10 late fee is assessed if application is completed after March 31 for Fall Semester and October 15 for Winter Semester. The \$10 late fee is not refundable under any circumstances.

#### Nursery School:

|  |       |
|--|-------|
| Smith Family Living Center, with lunch ..... | 49.50 |
| Smith Family Living Center, no meals .....   | 30.00 |
| Ashton House, no meals .....                 | 30.00 |
| Recreation Education 502R .....              | 10.00 |

### Rentals

|  |         |
|--|---------|
| Organ rental, one hour per day, per semester .....                     | \$10.00 |
| Each additional hour per day, per semester .....                       | 8.00    |
| Harpsichord, clavichord rental, one hour per day, per semester .....   | 10.00   |
| Each additional hour per day, per semester .....                       | 8.00    |
| Harp rental, one hour per day, per semester .....                      | 10.00   |
| Each additional hour per day, per semester .....                       | 8.00    |
| Piano rental, one hour per day, per semester .....                     | 7.50    |
| Each additional hour per day, per semester .....                       | 6.00    |
| Practice room without piano, one hour per day, per semester .....      | 4.50    |
| Each additional hour per day, per semester .....                       | 3.00    |
| Fine imposed on students who use rooms but have not paid the fee ..... | 2.00    |
| Locker rental (McKay Building and Eyring Science Center)               |         |
| 1 semester .....   | 1.50    |
| 2 semesters .....  | 2.50    |
| 2 semesters and Summer Session .....                                   | 3.00    |
| Key deposit .....  | 1.00    |
| Replacement of lost key .....  | 1.00 \  |

### Deposits

|   |         |
|---|---------|
| Physical education padlock fee .....    | \$ 1.00 |
| Industrial education .....              | 1.00    |
| Chemistry (each laboratory class) ..... | 10.00   |

## Student Personnel Services

The Student Personnel Services offer valuable assistance in the following areas that affect graduate students: academic standards, counseling service, foreign students advising, health services, student organizations and social life, and student publications.

### Dean of Student Life

The dean of student life is the chief administrative officer of Student Personnel Services. He initiates and recommends to the President needed policies and procedures in student life, and administers the program and coordinates the agencies at work on student problems.

### Personal Development Center

Of primary concern to Brigham Young University is the welfare of each individual student. Throughout the course of an education, students often find themselves in situations where they are confronted with difficult decisions, problems of adjustment, or the need to develop their interpersonal or social skills. Accordingly, they may find it helpful to seek the assistance of persons who are trained and skilled in working with students in these areas. For this reason the University maintains a fully accredited Personal Development Center, staffed by well-qualified, professional counselors.

The overall purpose of the Personal Development Center is to promote the personal growth of individuals within society and within the University community. To reach as many students as possible, the Personal Development Center extends itself beyond the confines of the center by locating counselors in a number of areas on campus. The services provided to students include (1) counseling, (2) skills development, (3) testing, and (4) information.

### Counseling

A great number of students seek counseling each year for a variety of reasons. In general, they come to the center for reasons of growth or decision

making. Specifically, students come for help in such areas as making vocational choices or choosing majors, dealing with study problems, developing social and interpersonal skills, growing in greater self-understanding, and working through personal problems. Some students find that individual counseling on a one-to-one basis with a counselor offers greater assistance, while others may benefit more in a group counseling situation, where several students and a counselor meet together. In both individual and group counseling, the primary focus is not upon the student's deficits or upon long-term therapy—although the latter is not neglected; rather, it is upon assisting the student to grow, mature, and accept full responsibility for his actions.

### **Skills Development**

In addition, the Personal Development Center provides a program to assist students in developing academic, social, and interpersonal skills to help them cope more effectively with college life and other situations. Students may participate in one or more of a variety of learning programs, where they may be taught the skills they wish to improve. Such a program may be individually worked out for each student through the help of a counselor.

### **Testing Services**

Tests for achievement, ability, interest, and adjustment are given to all students who request them through a counselor. Data from these tests are used as a basis for counseling in educational-occupational and personal-social problems. The Testing Service provides psychological test data for the use of counselors and faculty advisers; placement tests for various University academic groups; and assistance in preparing, administering, scoring, and analyzing subject-matter tests for various departments within the University.

### **Informational Services**

A comprehensive, current collection of essential occupational, educational, personal, and social information is maintained in the Personal Development Center library. In addition to many occupational monographs, briefs, and current catalogs of major universities and technical schools, there is an abundance of materials available relating to personal and social adjustment, including such areas as personality development, dating, marriage, budgeting, personal grooming, and college adjustment.

## **International Student Office**

Brigham Young University has established an office to serve the special needs of students who are not citizens of the United States. The classification of "international student" includes all students on F-1, J-1, immigrant, and permanent-resident visas. This classification includes permanent residents presently residing in the United States.

The International Student Office assists international students, who have received admission to the University, to obtain appropriate visa status and to maintain this status during the time they are studying at BYU. Many other important services are provided by the office, such as orientation; assistance with passport renewal, work permits, verification of enrollment, and practical training; and some aspects of academic and personal advisement.

In addition to academic qualifications, every international student must:

1. Obtain clearance from the BYU International Office before being accepted.
2. Register for **nine** (9) credit hours **each** semester.
3. Submit evidence of English proficiency.

Each international student should keep in close contact with the International Student Office while he is on the BYU campus.

## **Student Health Service**

Student health services are available through the University for all full-time students at the Howard S. McDonald Student Health Center. The center



functions year-round, twenty-four hours a day, seven days a week. Hospitalization, when necessary, is available at the Utah Valley LDS Hospital. The health center offers the following services at a reasonable cost:

1. Consultation with a nurse-practitioner, general physician, or specialist—by appointment—between 8:30 a.m. and 4:30 p.m. weekdays
2. Immunization and tuberculosis detection and treatment
3. Pharmacy
4. Physical therapy upon referral from a physician
5. Laboratory tests
6. X-ray examination
7. Emergency care twenty-four hours a day

A doctor will be summoned after hours for emergencies on a fee-for-service basis. Services not available at the health center are available by referral at outside facilities.

To complement the services of the student health center, a supplemental insurance program, designed to cover the major cost of medical care twenty-four hours a day, is offered to all full-time students at a nominal cost. This voluntary program is fully endorsed by the University and provides for a wide range of medical services. Students not otherwise protected by health insurance are urged to secure this excellent service. For further information, insurance brochures are available at the health center.

The health center is bound by the laws of confidentiality, and personal information will not be released to a third party without written permission from the patient.

### The BYU Code of Honor

The Church of Jesus Christ of Latter-day Saints sponsors Brigham Young University in order to provide students with a university education in an atmosphere consistent with the ideals, and principles of the Church. The maintenance of high standards of personal behavior and appearance is essential to the preservation of that atmosphere and also to the development of men and women who personify those ideals and principles. By enrolling or accepting employment at Brigham Young University a person signifies his willingness to live in accordance with the following principles, whether on or off campus:

1. Abide by the standards of Christian living taught by The Church of Jesus Christ of Latter-day Saints.  
This includes graciousness and consideration for others and the observance of high principles of honor, integrity, and morality.
2. Be honest in all behavior.  
This includes not cheating, plagiarizing, or knowingly giving false information.
3. Respect personal rights.  
This includes—  
(a) not physically or verbally abusing any person and not engaging in conduct which threatens or endangers the health or safety of others.  
(b) not obstructing or disrupting the study of others, the performance of official duties by University officers or employees, the teaching, research, disciplinary, administrative, or other functions of the University, or other authorized activities on University premises.
4. Respect property rights.  
This includes refraining from theft, concealment, damage, or misuse of the property of others.
5. Obey, honor, and sustain the law.
6. Avoid drug abuse.  
This includes refraining from the possession, use, or distribution

of any narcotic or dangerous drug (as defined by applicable law), except as prescribed by a licensed medical practitioner.

7. Comply with all University regulations.  
This includes compliance with rules relating to campus organizations and to the use of University or off-campus housing or other facilities.
8. Observe the Word of Wisdom.  
This includes abstinence from alcoholic beverages, tobacco, tea, and coffee.
9. Live the law of chastity.  
This includes abstinence from all sexual relations outside the bonds of marriage.
10. Observe high standards of taste and decency.  
This includes refraining from disorderly, lewd, indecent, or obscene conduct or expression.
11. Observe University standards of dress and grooming.
12. Help others fulfill their responsibilities under this Code.

### **Veterans Service**

All veterans should have their military experience evaluated for credit by the Office of Admissions and Records.

For information concerning educational benefits available to those who qualify under the Veterans' Readjustment Benefit Act, please contact the Veterans' Affairs and Selective Service Office, B-234 ASB, or call Ext. 3433. Forms for certification may be secured and processed to assure proper payment of benefits.

### **War Orphans Education Program**

Students who are dependents of veterans under the War Orphan Education Program, and who are entitled to benefits, should also contact the above office for enrollment certifications and related information.

### **Religious Opportunities**

Students have many excellent opportunities to participate in religious activities, which have always been an integral part of the educational program at Brigham Young University.

#### **BYU Stakes**

The Church is organized into a number of stakes, and each stake is composed of several branches of 200 and 300 members each. The stakes and branches are organized specifically to provide students the maximum opportunity for active participation in programs of the Church. Spiritual growth and the development of a strong testimony of the divinity of Jesus Christ are goals fostered by the campus stake and branch organizations, whose programs are closely correlated at all levels with the activities of the University.

All single LDS students living away from home become members in one of the BYU branches. Married students not living in University housing may attend either the BYU branch or the city ward in which they reside. The membership records of students remain in the BYU stakes until they finish their schooling at the University.

#### **Devotional Assemblies**

Devotional assemblies are held each Tuesday morning and are scheduled so that there is no conflict with classroom work. These assemblies enable students to hear messages of inspirational power from carefully chosen Church leaders, including many General Authorities of The Church of Jesus Christ of Latter-day Saints.

# Student Housing

Learning to live harmoniously with other people under the right kind of living conditions plays a vital part in a college education. Students living in groups, working, studying, and enjoying recreation together, gain much from each other. The conversations, good fellowship, and activities experienced in group living contribute to a person's whole development. Participation in democratic, self-governing living activities brings about a phase of education which can be gained in no other way.

The Office of Student Housing, established to assist students with their housing needs, is located in the Abraham O. Smoot Administration and General Services Building. All inquiries or administrative problems relating to housing needs should be referred to this office.

## Campus Housing

### Residence-Hall Supervision

Each area of campus housing is organized under the supervision of a person with professional training and experience for this type of work. The residence-hall staff carries out a program designed to provide each student with experiences in democratic self-government, in cultivating the responsibilities that go with maturity and independence, and in learning the art and science of human relationships in working and living with others. The staff assists the student to achieve a sense of belonging and to develop social competence through planned social and recreational programs. Head residents are available for general counseling. They carry out the residence-hall program in cooperation with other University academic services.

### Applications

A student who plans to enroll at the University and live in a University residence hall should make inquiry to the Office of Student Housing about a year in advance. A housing application form will be sent to each inquiring student. A \$10 application fee is required and should be enclosed with the completed application form when it is returned to the Office of Student Housing. A residence-hall assignment and appropriate agreement forms are prepared on a basis of the date of receipt of the application form by the housing office and are mailed in the spring and early summer.

### Acceptance to University Housing

The validating of any campus housing reservation is contingent upon the student's official acceptance and admission to the University. For admission to the University contact the Graduate Admissions Office, D-251 ASB.

### Rental Agreements

A student planning to live in campus housing may expect to sign a rental agreement for the accommodations he will occupy. He should be prepared to live by the terms of this agreement once he has signed and returned it to the Office of Student Housing. Misunderstanding and financial loss can be avoided by a student if he will read and familiarize himself with the terms of the agreement before signing it.

### Apartment Living for Women

Housing for women is provided in twenty-four Heritage Halls. These are apartment-type buildings. Each apartment consists of a combination kitchen-dining-study room arrangement, three bedrooms, and a bath. In addition, there are large living rooms, a recreation room, a head resident apartment, and laundry and storage facilities in each building. Six girls occupy an apartment and live cooperatively, preparing their own meals. The apartments are completely furnished except for bedding, kitchen utensils, and dishes. The facilities are excellent and offer a high standard of living for college students. The approximate annual rate for these accommodations is \$355. Food is purchased cooperatively by the residents of each apartment.

Help in the homemaking experiences of budgeting, buying, meal planning, and the selection, care, and construction of clothing is available from specialists who are assigned to Heritage Halls. In addition, a specialist is available to assist students in planning social activities, developing recreational skills, and learning wise use of leisure time.

Each woman student desiring to live on campus should consider carefully the type of accommodations desired in view of her economic needs, time available for activities within her housing situation, and type of experience desired. Agreements are made for the academic year, and moving from one type of accommodation to another during the year is difficult to arrange.

### Residence Halls

Board and room services for men and women are provided in eight buildings known as Helaman Halls and six buildings in Deseret Towers. These buildings form a beautifully designed residence-hall development. The buildings are conveniently grouped around an attractively planned and developed central building. Each residence hall accommodates 234 to 264 students, with two persons sharing each bedroom. In addition, living rooms, study rooms, central shower areas, recreational rooms, adequate laundry and storage facilities, and a head resident apartment are located in each building. These halls provide some of the best student living experiences offered on any university campus. The central building features spacious dining rooms and a snack bar, providing the excellent food service for which BYU is noted. This building also contains beautiful living rooms, recreational areas, administrative offices, and other management facilities such as mail rooms and laundry and dry cleaning pickup stations. The approximate annual rate for these accommodations is \$890. A few single rooms are available at an approximate rate of \$950.

### Apartments and Homes for Married Students

Family accommodations for 612 married couples and their children are provided in housing developments known as Wymount Terrace and Wyview Park. All units in married-students' housing are assigned according to family size.

Wymount Terrace—which includes 24 residence buildings, an administration building, and 3 laundries—consists of 462 apartments. There are 108 one-bedroom units, 60 one-bedroom-study units, 264 two-bedroom units, and 30 three-bedroom units. The monthly rental rates are approximately \$77 for the one-bedroom units, \$83 for the one-bedroom-study units, \$87 for the two-bedroom units, and \$97 for the three-bedroom units. In addition, each family pays for its electricity. Balconies or porches for all apartments open on courtyards. Apartments have an all-tile bathroom, a kitchen with modern appliances, including garbage disposal units, gas ranges, electric refrigerators, and an attractively designed living room.

Wyview Park—which consists of 150 mobile homes and a central building—will accommodate 150 married couples and their children. There are 36 one-bedroom units, 78 two-bedroom units, and 36 three-bedroom units. These units are rented on the same basis as Wymount Terrace with the same monthly rates as corresponding units in that area. All mobile homes are unfurnished with the exception of refrigerators and stoves.

The Residential Housing Department can assist those who desire to live off campus in finding suitable apartments in the Provo community.

## Residential Housing

All students living off campus are required to live in University-approved housing. The Residential Housing Department of the Office of Student Housing maintains up-to-date listings of approved residences. This office is established to assist students upon their arrival in Provo to find suitable quarters if they desire to reside in the community.

Residential housing consists of apartments, rooms with kitchen privileges, board-and-room residences, and sleeping rooms located in homes in the community. These facilities are inspected by University representatives to see that



they comply with established standards before they are approved for student occupancy. Through the cooperative efforts of landlords and the University, constructive action has been taken to raise the standard of student housing throughout the community. Before making any commitments for residential housing, students should be sure that the place in which they contemplate living has been approved by the University.

A student planning to reside in the community should expect to sign a student-landlord rental agreement form, which will be furnished by the University Housing Department. He should be prepared to live by the terms of this agreement once it has been signed, and a copy should be returned to the Office of Student Housing. Misunderstanding and financial loss can be avoided if the student will read and familiarize himself with the terms of the rental agreement form before signing it.

### **Rates**

Rates for residential housing accommodations vary with the type of service provided; consequently, only a general indication can be given here. Sleeping rooms rent from \$25 to \$40 per month. Apartment accommodations run from \$35 to \$50 per month per student. Board and room is available at the rate of \$65 to \$80 per month. Apartments for married students can be obtained at a rate of approximately \$75 to \$130 per month.

### **Time of Arrival**

Residence halls are not open to a student prior to the announced opening date, usually the day before freshman orientation. The University does not advise a student who is going to live in campus housing to arrive before that date.

## **Food Service**

Regular meal service is provided for students at three different cafeterias on campus. Two of these are operated as part of the board-and-room service of residence halls. It is possible for students living off campus to buy meal tickets at reduced prices and eat in these places. The other cafeteria is in the Ernest L. Wilkinson Center, where meals are served at reasonable prices either for cash or by reduced-rate scrip books. In addition, by contacting the Office of Student Housing, board-and-room students may participate in a supplemental food program costing approximately \$90 a year more than the regular board-and-room rates.

The University operates four snack bars: one in the Ernest L. Wilkinson Center, a second in the George Albert Smith Fieldhouse, a third in the Helaman Halls Cannon Center, and a fourth in Deseret Towers. Food is available throughout the day. Food also may be secured from vending machines located throughout the campus. Costs of meals and food service are kept as low as possible, consistent with sound operating management.

The University also operates a dairy products laboratory where milk, ice cream, and other dairy products may be purchased by students and faculty at very favorable prices. Students preparing their own meals find this service both desirable and economical.

# List of Courses

## General

Students should consult the class schedule for specific information concerning semesters or terms in which classes are offered, except as specially noted.

### Semester System

Courses of study at Brigham Young University are offered and credit for satisfactory completion is granted on a semester basis.

### Course Numbering System

| Course Number | Type of Course  |
|---------------|---|
| 500 to 599    | Graduate courses open also to advanced undergraduate students |
| 600 to 799    | Graduate students only  |

### Credit-Hour Designation

The three-number code for credit hours, listed in parentheses following the course title, has the following significance:

|                |   |
|----------------|---|
| First number:  | Semester hours of credit  |
| Second number: | Class hours of lecture, recitation, or seminar meeting per week or<br>minimum hours of individual study required per week |
| Third number:  | Laboratory hours required per week or<br>hours of field study or individual research per week                             |

### Abbreviations and Symbols

The following abbreviations and symbols are used in the List of Courses section:

|      |   |
|------|---|
| Arr. | Class or laboratory hours arranged  |
| ea.  | Credit-hour designation applies to each course number listed                          |
| □    | Course originating in one department which may count for credit in another department |
| R    | Course which may be repeated for credit   |

### Cross-Referencing of Courses

Each course is listed completely only once in the catalog. If the course may count in another department, it is listed in abbreviated form in that department and is preceded by a special symbol, □.

### Graduate Courses

No D credit can apply toward a graduate degree. Neither lower-division nor correspondence credit can be applied toward a graduate degree.

### Reservation of Right to Change Courses

At the time of printing of this catalog, the University intends to offer the courses listed herein but reserves the right to eliminate or discontinue any of them or to add new courses.

## Accounting

**Professors:** H. Andersen, Johnson, Knighton, Orton, K. Skousen, J. Smith, R. Smith, Taylor (graduate coordinator, 348 JKB), Woodfield (chairman, 350 JKB).

**Associate Professors:** Cameron, Garrison, Hubbard, McAllister, F. Skousen, Western.

**Assistant Professors:** L. Anderson, Grant, Hardy.

**Programs:** Master of Accountancy (M.Acc.), fifth year; Three-Year Master's Degree Program (B.S., M.Acc.), professional program.

**Entrance Examination Required:** Admission Test for Graduate Study in Business (ATGSB), applications available from Educational Testing Service, Box 966, Princeton, New Jersey 08540, the BYU Testing Office (B-238 ASB), and most universities.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Fall or Winter semesters, or Spring Term for M.Acc. program (fifth year); Fall only for Three-Year Master's Degree Program, (professional program).

### Master of Accountancy (One-Year Program)

**Prerequisites:** The following courses or their equivalents must have been taken prior to entering the program. Those who have not completed these prerequisites are urged to register in the College of Business as undergraduate students as if seeking a second bachelor's degree until these requirements are completed.

Acctg. 201, 232, 301, 302, 311, 342, 356, 411  
Econ. 111, 112, and 301 or 302  
Bus. Mgt. 301, 341  
Org Behav. 321  
Comput. Sci. 133 A and B  
Math. 110  
Stat. 221

Foreign students for whom English is not their native language are required to take at an American university at least 12 semester hours in accounting subjects, including intermediate accounting, before they can be considered for admission.

**Minor Permissible:** Option 1 (approval of graduate accounting coordinator), or Option 2 (supporting fields).

**Requirements:** Minimum of 32 semester hours, initial oral examination, written comprehensive examination, final oral examination.

**Required Courses:** Acctg. 612, 613, 632, 675, 691R; Org. Behav. 610; Bus. Mgt. 639; and one of the following: Econ. 353, Bus. Mgt. 638, or Bus. Mgt. 668.

### Master of Accountancy (Three-Year Program)

Students enter this program as undergraduates at the junior year level.

**Prerequisites:** completion of general education requirements of BYU, except for religion requirements during junior and senior years; completion of the business fundamentals requirement of the College of Business.

**Minors Permissible:** Option I or II as approved by the graduate coordinator.

**Requirements:** Junior year: preprofessional program of 34 hours; senior and graduate years: completion of an integrated professional program of 65 hours; special emphasis is given to written and oral communication, internship ex-

perience and preparation for professional examinations such as the CPA or CMA. All students will be urged, although not required, to participate for at least one semester as a graduate assistant. Contact the graduate coordinator for details of this program.

### Courses

- 401. Special Problems in Accounting I.** (2:2:0) Prerequisite: Acctg. 302.  
Includes partnerships, joint ventures, consignments, installments, receiv-  
erships, estates and trusts, and statements of affairs.
- 402. Special Problems in Accounting II.** (2:2:0) Prerequisite: Acctg. 302.  
Home office and branch accounts, business combinations, foreign ex-  
change, and parent and subsidiary accounting.
- 403. Accounting for Nonprofit Organizations.** (2:2:0) Prerequisite: Acctg. 202  
or 301.  
Accounting concepts and methods peculiar to governmental units, uni-  
versities, hospitals, and other nonprofit organizations.
- 411. Cost Accounting.** (3:3:0) Home Study also. Prerequisite: Acctg. 301.  
An introduction to the principles and practices of cost accounting.
- 420. Federal Taxes.** (3:3:1) Prerequisite: Acctg. 202 or 301.  
Basic federal tax legislation and regulations.
- 421. Advanced Tax Problems.** (3:3:0) Prerequisite: Acctg. 420.  
Advanced study of federal income tax, estate and gift taxes, and  
special problems in corporate taxation.
- 442. Advanced Business Law.** (3:3:0) Prerequisite: Acctg. 342.  
Business law for accountants and businessmen, with emphasis on laws  
covered in professional accounting examinations.
- 455. Data Processing Systems.** (3:3:0) Prerequisite: Acctg. 356.  
Principles governing design and installation of accounting systems and the  
selection of equipment for optimum performance in data processing cycles.  
Offered alternate semesters.
- 457. Advanced Computer Programming.** (3:1:3) Prerequisite: Acctg. 356.  
Emphasis on the solution of practical problems in data processing.  
Individual work on the University's computer and comparison of various  
computers in current use. Offered alternate semesters.
- 465. Auditing Theory and Professional Ethics.** (3:3:0) Prerequisites: Acctg.  
302, 311.  
Principles and methods of public accounting, professional responsibility  
and conduct, and verification techniques of accounts and financial state-  
ments.
- 475. Current Problems in Accounting Theory.** (3:3:0) Prerequisites: Acctg.  
302, 311.  
Studies in current accounting theory.
- 486. Contemporary Professional Accounting Problems.** (3:3:0) Prerequisites:  
Acctg. 420; completion of or concurrent registration in Acctg. 465, 401,  
and 402.  
Study in accounting problems with emphasis on problems encountered  
in professional examinations.
- 596. Accounting Internship.** (3:0:9) Prerequisite: Acctg. 302. Recommended:  
Acctg. 465.  
Practical on-the-job experience and training with industrial and public  
accounting firms.
- 612. Managerial Cost Accounting.** (3:3:0) Prerequisites: Acctg. 302, 311, and  
411.  
Study of specialized areas in cost determination and cost allocation.



- 613. Seminar in Resource Allocation and Control.** (3:3:0)
- 621. Tax Research and Planning.** (3:3:0) Prerequisites: Acctg. 420 and preferably Acctg. 421.  
Research and solving of tax problems using the tax code, regulations, and other sources.
- 632. Quantitative Analysis in Business.** (3:3:0) Prerequisite: Acctg. 332.  
Application of quantitative analysis to administrative problems.
- 665. Auditing Seminar.** (3:3:0) Prerequisite: Acctg. 465.  
A study in auditing concepts and philosophy and of their application to modern auditing methods and techniques.
- 675. Theory of Accounts and Statements.** (3:3:0) Prerequisites: Acctg. 302, 311, and 475.  
History and development of accounting and financial statements—their meaning and interpretation. Problems in current accounting theory.
- 687R. Seminar in Accounting and Reporting Problems.** (1-3:1-3:0 ea.)  
An in-depth study into the current accounting and reporting problems and their solutions.
- 691R. Research Seminar.** (1-2:1-3:0)  
Three hours' credit required in M.Acc. program to cover research methodology, discussion of current topics of student research, and writing a research paper in proper form.
- 693. Reading and Conference.** (1-3:1-3:0)  
Subject to be arranged with instructor.
- 696. Accounting Internship.** (1-3:Arr.:Arr.) Prerequisite: Acctg. 302. Recommended: Acctg. 465.  
Practical on-the-job experience and training with industrial and public accounting firms.
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)  
This course number should also be used for continuing registration by students working on theses.

## Agriculture

The graduate program in agriculture offers a Master of Science degree in agribusiness, agronomy, animal science, horticulture, and any combination of these fields. These fields and their respective requirements are listed below.

### Agribusiness (Agricultural Economics)

**Professors:** Carpenter, Corbridge, Infanger, Fuhrman  
**Assistant Professor:** Wood (Chairman, 475 WIDB)

**Entrance Examination Required:** None

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** An undergraduate degree in any field of agriculture or food science including the following classes or their equivalent:  
Econ. 111; Ag. Econ. 112; Acctg. 201, 202; Math. 108 and 109 or Acctg. 232; Stat. 221; Comput. Sci. 131 or 133.

**Requirements:** A minimum of 30 semester hours; a supervised special project including a scholarly project report; a final oral examination.

This program is designed primarily as a terminal degree for students who want to obtain a more adequate practical working knowledge of economic and business principles as they apply to agribusiness enterprises.

**Required Courses:** As designated by committee.

### Courses

- 520. (Ag. Econ.-An. Sci.-Bot.) Management of Ranch Resources.** (3:2:2) (m)  
Prerequisite: consent of instructor. Corbridge, Shumway, Wallentine
- 521. Management of Cropland Resources.** (3:3:0) Prerequisite: consent of instructor. Corbridge, Robison
- 570R. Advanced Topics.** (1-3:1-3:0 ea.) Prerequisite: consent of instructor.  
Topics in marketing, policy, computer applications, and international agriculture.
- 595R. Individual Readings.** (1-3:Arr.:Arr. ea.)
- 597R. Individual Readings.** (1-3:Arr.:Arr. ea.)
- 598R. Supervised Field Project.** (1-3:Arr.:Arr. ea.) Prerequisite: approval of supervisor.

### Agronomy and Horticulture

**Professors:** Allred, Farnsworth, Laws (graduate coordinator, 271 WIDB), Robison (chairman, 275 WIDB), Walker.

**Assistant Professors:** Nelson, Williams.

**Program:** Master of Science (M.S.)

**Entrance Examination Required:** A written, comprehensive examination on undergraduate work, normally given during the first week after registration as a graduate student.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** Undergraduate major in the field or the equivalent.

**Minors Permissible:** Statistics, chemistry, botany, mathematics, or physics; Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.).

**Required Courses:** Stat. 501, 502; Agron.-Hort. 696R each semester.

### Courses

- 511. Soil Physics.** (3:2:3) Prerequisites: Agron.-Hort. 282; Math. 101 or 105; one semester inorganic chemistry (102 or higher).
- 520. Saline and Alkali Soils.** (3:1:6) Prerequisites: Agron.-Hort. 302, 305.  
Farnsworth
- 540. Advanced Crop Production.** (3:3:0) Prerequisites: Agron.-Hort. 151, 305, 459; Bot. 440.  
Robison
- 550. Advanced Horticulture.** (3:3:0) Prerequisites: Agron.-Hort. 318 or 340 or 351, and 352; Bot. 440.

- 560. Soil and Plant Analysis.** (2:0:6) Prerequisites: Agron.-Hort. 350; Chem. 233. Laws
- 598R. Conferences and Reports.** (1-2:1-2:0 ea.) Prerequisite: consent of instructor.
- 605. Chemistry of Soil-Plant Relationships.** (4:3:3) Laws  
Offered 1974 and alternate years.
- 607. Soil Physical Conditions.** (3:3:0) Laws
- 614. Advanced Soil Microbiology.** (3:3:3) Prerequisites: Agron.-Hort. 305; Micro. 121; Chem. 223. Farnsworth
- 659. Advanced Plant Breeding.** (2:2:0) Prerequisite: Agron.-Hort. 459. Allred
- 696R. Seminar.** (1:1:0 ea.)
- 697R. Research.** (Arr. ea.)
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr. ea.)

### Animal Science

**Professors:** Cannon (professor emeritus), Gardner, Hoopes, Orme, Park, Shumway (chairman, 375 WIDB), Wallentine.  
**Assistant Professors:** Johnston, Smith.

**Program:** Master of Science (M.S.)

**Entrance Examinations Required:** None.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** A bachelor's degree in animal science or the equivalent, including the following:

Micro. 321, 331, 371, 501; Math. 105 and most higher courses; Bot. 101, 376; Chem. 102 and higher; Physics 201, 202; Stat. 221, 336, 337; Zool. 201, 202, 203, 376, 417, 465, 483.

**Minors Permissible:** Agricultural economics, agronomy, microbiology, botany, chemistry, education, zoology, computer science, or statistics.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.).

**Required Courses:** Zool. 520 (or English 99); Stat. 501, 502; An. Sci. 692R each semester.

### Courses

- ☐ **Statistics 501, 502. Statistics for Research Workers I, II.** (5:4:3)
- 507. Animal Nutrition.** (3:3:0) Prerequisites: An. Sci. 207; Chem. 151 or equivalent. Recommended: Chem. 384. Gardner
- 508. Animal Nutrition Laboratory.** (2:0:6) Prerequisite: completion of or concurrent registration in An. Sci. 507. Gardner
- 515. Advanced Animal Breeding.** (3:3:0) Prerequisite: An. Sci. 153 or a genetics course. Park
- 520. (Agr. Econ.-An. Sci.-Bot.) Management of Ranch Resources.** (3:2:2) (m)  
Prerequisites: senior or graduate standing and consent of instructor.

**525. Meat and Food Processing Plant Operations.** (2-6:½-1½:10-30) Prerequisites: An. Sci. 325, 328; Agr. Econ. 410 or equivalent.

☐ **Statistics 531. Experimental Design.** (3:3:0)

☐ **Statistics 536. Regression Analysis.** (3:3:0)

**560. Advanced Dairy Production.** (3:3:0)  
Offered 1975 and alternate years.

Gardner

**591R. Selected Topics in Animal Science.**

**595R. Special Problems in Animal Science.**

**692R. Seminar.** (1:2:0 ea.)

**699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Anthropology and Archaeology

**Professors:** Christensen, Jakeman (graduate coordinator, 136 MSRB), Myers (chairman, 150 MSRB).

**Associate Professors:** Matheny, Berge.

**Program:** Master of Arts (M.A.) in archaeology only.

**Entrance Examination Required:** A qualifying examination must be taken by September 30 for students entering the program Fall Semester and by January 31 for students entering Winter Semester unless this examination has already been taken at the end of the senior year by students entering the Graduate School from the undergraduate program at Brigham Young University.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Fall and Winter semesters only.

### Master of Arts

**Prerequisite:** Undergraduate major in archaeology or equivalent.

**Fields:** Historic (text-related) archaeology, prehistoric archaeology.

**Minors Permissible:** Any established minor in the humanities or the sciences; Option II.

**Requirements:** Minimum of 15 semester hours in archaeology and a minor, plus the thesis (6-hr. min.—699); foreign language proficiency when essential to the student's field of research; and a comprehensive examination prior to undertaking thesis research.

**Required Courses:** Archaeology 580R; 590R; at least one of the following area courses: 515, 545, 555, and 455R or comparable field experience.

This department is affiliated with the BYU-New World Archaeological Foundation, which affords some graduate students field experience in Mesoamerica.

The program is designed to prepare students for Ph.D. work and a professional career in archaeology.

### Courses

**515. Advanced Southwestern Archaeology.** (3:2:2) (G-SS) Matheny

**545. Advanced Near-Eastern and Mediterranean Archaeology.** (3:2:2) (G-SS)  
Christensen



555. **Advanced Mesoamerican Archaeology.** (3:2:2) (G-SS) Jakeman,  
Matheny
570. **Advanced Archaeology.** (3:1:4) Berge
- 580R. **Advanced Theory and Research Design.** (3:3:0) Prerequisite: consent of  
instructor.
- 590R. **Seminar.** (2:2:0)
610. **Classification of Material Culture.** (3:2:4)
671. **Advanced Interpretive Methods.** (2:2:2)
- 695R. **Library Research.** (2:0:6)
- 696R. **Museum Studies.** (2:0:6)
- 697R. **Field Research.** (3-10:0:9-30)
699. **Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Art and Design

**Professors:** Breinholt, Gunn, Magleby, Turner, Weaver, Wilson.

**Associate Professors:** Burnside, Darais, Johansen, Myer, Stout (graduate coordinator), Tippetts.

**Programs:** Master of Arts (M.A.), Master of Fine Arts (MFA). Applicants should note the differences between the Master of Arts degree and the Master of Fine Arts degree. Applicants for admission to the Master of Fine Arts degree program must submit a portfolio of their art work. This should be deposited with the Art Department no later than the application deadlines listed below. Slides will be acceptable for heavy or bulky works.

**Entrance Examination Required:** Interview with a committee of the graduate faculty during registration.

**Application Consideration Dates:** April 1 for Spring and Summer terms and Fall Semester, November 1 for Winter Semester.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** Undergraduate major in art or its equivalent; proficiency in basic drawing and design fundamentals in two-dimensional and three-dimensional work; at least 20 semester hours of upper-division work, including 7 semester hours in art history.

**Areas:** Design, painting and sculpture.

**Minors Permissible:** One of the above areas may be selected as a minor.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.). At least 15 semester hours, exclusive of thesis, must be in one of the fields listed above and at least 9 semester hours in a minor field.

**Required Courses:** 4 semester hours in Art 600R.

The Master of Arts degree is intended to stress the academic thrust of art.

### Master of Fine Arts

**Prerequisites:** Undergraduate major in art or its equivalent; proficiency in basic drawing and design fundamentals in two-dimensional and three-dimensional

work; and at least 20 semester hours of upper-division work, including 7 semester hours in art history.

**Areas:** Painting and sculpture, design (crafts, ceramics, commercial art, print-making).

**Minors:** See below.

**Requirements:** Minimum of 36 semester hours in one of the two areas above, including a minimum of 6 semester hours of MFA project (Art 697R) and 4 semester hours of advanced design (Art 620R); minimum of 12 semester hours in the alternate area (this constitutes the only permissible minor for the MFA degree); minimum of 4 semester hours of graduate level art history. Total hours: 52. Also required are a one-man show of materials produced in this program during the third semester and the public exhibition of the candidate's MFA terminal project. This performance degree must be completed in residence.

Before beginning the fourth semester of his program, the candidate will submit plans to the graduate art faculty for a terminal project of a work or works of art created by the candidate. To be acceptable it must represent a professional level of quality. It may be retained by Brigham Young University as part of its permanent collection.

Although a research thesis is not required, an orderly record will be submitted in which the MFA candidate traces, by means of personal statements photographs, transcripts, news clippings, correspondence, etc., his artistic development during his time in this program. It will also include an illustrated account of his production of the MFA terminal project described above.

### Courses

- 500. Philosophy of the Fine Arts.** (2:2:0) Recommended: Phil. 213 and any of the art appreciation classes or Hum. 101.  
Lecture and seminar for majors in fine arts.
- 518. Architectural Mural Media.** (2:2:2) Prerequisites: Art 227, 320, 321 or 322.  
Historical backgrounds, studio work in design, and execution of murals.
- 578R. Art Education Studio.** (1-3:1:5 ea.)  
Curricula and projects in art education.
- 595. Seminar.** (1:0:2)  
Student and faculty analysis of curricula relationships; projection of student objectives; contemporary topics; visits to current exhibits.
- 600R. Individual Study in Art History.** (2-8:Arr.:Arr.)  
Allows graduate study in depth into any chosen historical art era.
- 618R. Advanced Architectural Mural Media.** (2:8:Arr.:Arr. ea.)
- 620R. Advanced Design.** (2-8:Arr.:Arr. ea.) Prerequisite: Art 420R.
- 621R. Advanced Drawing.** (2:2:2 ea.)
- 622R. Advanced Figure Drawing.** (4:4:4 ea.) Prerequisite: Art 621R.
- 627R. Advanced Painting.** (2-8:Arr.:Arr. ea.) Prerequisite: Art 427R.
- 633R. Advanced Watercolor.** (2-8:Arr.:Arr. ea.) Prerequisite: Art 433R.
- 636R. Advanced Industrial Design.** (2-8:Arr.:Arr. ea.) Prerequisite: Art 436R.
- 641R. Advanced Graphic Design.** (2-8:Arr.:Arr. ea.) Prerequisite: Art 441R.
- 650R. Advanced Printmaking.** (2-8:Arr.:Arr. ea.) Prerequisite: Art 450R.
- 656R. Advanced Sculpture.** (2-8:Arr.:Arr. ea.) Prerequisite: Art 456R.

- 659R. **Advanced Ceramics.** (2-8:Arr.:Arr. ea.) Prerequisite: Art 459R.
- 661R. **Advanced Crafts and Advanced Metal.** (2-8:Arr.:Arr. ea.) Prerequisite: Art 461R.
677. **Survey of Recent Studies in Art Education.** (2:2:0)
678. **Art Education.** (2:2:0)
679. **Advanced Arts and Crafts for Elementary Teachers.** (2:2:1) Prerequisite: consent of instructor.
690. **Color.** (2:2:0)
692. **Color.** (2:2:0) Prerequisite: Art 690.
695. **Seminar.** (1:1:0)
- 697R. **MFA Project for Master's Degree.** (2-8:Arr.:Arr. ea.)
699. **Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Asian Studies

**Professors:** Farnsworth, Hillam, Hyer, Palmer (coordinator, 121 FOB).  
**Assistant Professors:** Britsch, Montgomery.

**Program:** Master of Arts (M.A.).

**Entrance Examination Required:** None.

**Application Consideration Date:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** Proficiency in one Asian language; strong undergraduate preparation in Asian studies.

**Field:** Asian studies.

**Minors Permissible:** Any approved minor.

**Requirements:** The Master of Arts candidate will—

1. Complete a major in one of the departments of the University (all departmental requirements must be fulfilled for the major).
2. Complete at least 15 hours in approved Asian area courses at the graduate level from areas other than the department major, including two seminars in the Asian area.
3. Write a thesis on an Asian subject that is acceptable to both majors (for example, a student in history would write his thesis on Asian history).

### Courses

#### Economics

535R. **Economic Problems of Asia.** (3)

#### History

640. **The Far East.** (2)

648. **Culture of Asia.** (2)

#### Political Science

551. **Political System of China.** (3)

- 552. Political System of Japan. (3)
- 558. Modernization and Political Change in Asia. (3)
- 580. International Relations of Asia. (3)
- 695R. Seminar in Comparative Government and Politics. (1-3 ea.)
- 697R. Seminar in International Relations (Asia). (1-3 ea.)

**Religion**

- 555. Comparative World Religions (Asian). (2)
- 556. Comparative World Religions (Asian). (2)
- 559. The Church in Asia. (2)
- 659R. Seminar in History of Asian Religion. (1-6 ea.)

**UNDERGRADUATE (Upper-division)****Anthropology**

- 350. Peoples of South and East Asia. (3)

**Art and Design**

- 302. Oriental Art. (2)

**Asian Studies**

- 499. Senior Seminar in Asian Studies. (3)

**Economics**

- 330. Economic Development. (3)

**Geography**

- 470. Asia. (3)

**History**

- 340. Premodern Asia. (3)
- 341. Modern Asia. (3)
- 342. Korea. (3)
- 343. Formative Period of Chinese Civilization. (3)
- 344. Modern China. (3)
- 345. Premodern Japan. (3)
- 346. Modern Japan. (3)
- 347. India. (3)
- 348. Southeast Asia. (3)
- 349. Central Asia and Russian Expansion. (3)
- 440. Communist China. (3)

**Chinese (Mandarin)**

- 301. Third-Year Chinese. (4)
- 311. Third-Year Conversation. (2)
- 321, 322. Selected Readings and Composition. (3 ea.)
- 441, 442. Introduction to Classical Chinese. (4 ea.)
- 443, 444. Modern Chinese Literature. (4 ea.)
- 445. Chinese Civilization. (3)
- 490R. Individual Study in Chinese. (1-3 ea.)
- 495. Senior Seminar for Majors. (2)

**Japanese**

- 301. Third-Year Japanese. (4)
- 311. Third-Year Conversation. (2)
- 321. Selected Readings and Composition. (3)
- 322. Selected Readings and Composition. (3)



443, 444. Modern Japanese Literature. (3 ea.)

490R. Individual Study in Japanese. (1-3 ea.)

### **Political Science**

359R. Topics in Comparative Government and Politics. (3)

### **Religion**

453A. Mormonism and the World's Religions. (2)

## **Botany and Range Science**

**Professors:** Andersen, Harper (chairman, 499 WIDB), Hess, Moore, Murdock, Stutz, Vallentine, Weber, Welsh.

**Associate Professors:** Tidwell, Whittton (graduate coordinator, 495 WIDB).

**Assistant Professors:** Brotherson, Rushforth, Wood.

**Collaborators:** Felker, Frischknecht, Holmgren, Plummer, Thornock, Ware.

**Programs:** Master of Science (M.S.), Doctor of Philosophy (Ph.D.).

**Entrance Examination Required:** A written diagnostic examination on undergraduate work, normally given during the first month after registration as a graduate student.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### **Master of Science**

**Prerequisites:** Students working toward a graduate degree in botany should have a basic understanding of general botany, cytology, anatomy, taxonomy, genetics, morphology, physiology, and ecology. Students working toward a graduate degree in range science should have a basic understanding of general botany, taxonomy, genetics, physiology, ecology, range management, range analysis, and animal nutrition and management. They should also have training in mathematics, chemistry, physics, microbiology, soils, and zoology adequate for advanced study in areas of specialization. Where deficiencies exist, provision must be made for correcting them.

**Fields:** Biological science education, botany, genetics, range science.

**Minors Permissible:** Any established minor in the sciences, humanities, or social sciences; Option I or II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.).

**Required Courses:** None.

### **Doctor of Philosophy Degree in Botany**

**Prerequisites:** A master's degree in botany or the equivalent.

**Fields:** Botany, genetics.

**Minors Permissible:** Any minor.

**Requirements:** Minimum of 30 semester hours of course work approved by the student's graduate committee plus dissertation (18-hr. min.).

Option I. A major and minor field within the department plus a minor field outside the department. The number of hours in each will depend upon the background, interests, and competence of the student.

Option II. A major field within the department with a program of supporting courses plus a minor field outside the department. The number of

hours in the major and minor fields will depend upon the background and competence of the student.

**Required Courses:** None.

## BOTANY

### Course3

- 501. Histological Technique.** (2:0:6) Prerequisite: Bot. 101 or Zool. 105. Moore  
Techniques of preparing plant tissues for microscopic examination. Offered 1973-74 and alternate years.
- 510. Advanced Taxonomy.** (3:2:3) Prerequisites: Bot. 210 and Bio. Agr. Ed. 276, or consent of instructor. (One three-day field trip to be arranged.) Welsh
- 515. Agrostology: Taxonomy and Ecology of Grasses.** (2:1:3) Prerequisite: Bot. 210. Harper, Wood  
Classification and ecology of grasses. Important forage species are emphasized. Offered 1974-75 and alternate years.
- 522. Biological Instrumentation.** (3:1:6) Prerequisite: graduate status or permission of instructor. Weber  
Theory and application of research instruments to biological problems.
- 533. Algology.** (3:2:3) Prerequisite: Bot. 331 or consent of instructor. Rushforth  
A detailed study of the algae, including classification and morphology.
- 535. Advanced Mycology.** (4:2:6) Prerequisite: Bot. 335 or equivalent. Weber  
A detailed study of taxonomy and morphology of special groups. Offered 1973-74 and alternate years.
- 539. Paleobotany.** (3:2:3) Prerequisites: Bot. 101 or 105; Geol. 103. Tidwell
- 550. Plant Geography** (3:2:3) Welsh  
The distribution of plant species and communities in the light of present and past climates. Offered 1973-74 and alternate years.
- 551. Quantitative Ecology.** (3:3:0) Prerequisite: Bot. 450 or 453. Harper  
Methods used in community analysis.
- 557. Experimental Ecology.** (2:0:6) Murdock  
Investigations on the phenology of selected species. Offered 1974-75 and alternate years.
- 610. Botanical Terminology and Nomenclature.** (2:2:0) Prerequisite: consent of instructor. Welsh  
A detailed study of botanical terminology, including the contributions of Latin and Greek words, their gender, number, and case. Offered 1974-75 and alternate years.
- 620. Cell Biology.** (4:3:3) Prerequisites: Bot. 325 or Zool. 465 or 466; Chem. 581. Andersen  
Cytology and cellular physiology, with emphasis on eucaryotic organisms. Offered 1973-74 and alternate years.
- 621. Electron Microscopy.** (2:2:0) Hess  
Theoretical and practical aspects of electron microscopy of biological material.
- 622. Electron Microscopy Laboratory.** (1:0:3) Prerequisites: consent of instructor and completion of or concurrent registration in Bot. 621. Hess  
Laboratory to accompany Bot. 621. Essentially individual instruction.

630. **Angiosperm Morphology.** (4:3:3) Prerequisite: familiarity with taxonomy, anatomy, and physiology or biochemistry. Tidwell  
Offered 1974-75 and alternate years.
634. **Morphogenesis.** (3:2:3) Prerequisites: familiarity with taxonomy, anatomy, and physiology or biochemistry. Moore  
The development of form in organisms. Offered 1973-74 and alternate years.
638. **Genetics of the Fungi.** (2:2:0) Prerequisite: a laboratory course in microbiology, botany or zoology. Andersen  
Offered 1974-75 and alternate years.
641. **Physiology of Fungi and Algae.** (4:3:3) Prerequisites: Bot. 335 and 440. Stocks, Weber  
Offered 1973-74 and alternate years.
- 650R. **Advanced Topics in Plant Ecology.** (2:2:0) Brotherson,  
Murdock, Wood  
Current trends in ecological research and philosophy.
676. **Cytogenetics.** (3:2:3) Prerequisites: genetics and cytology. Andersen,  
Stutz  
Offered 1974-75 and alternate years.
678. **Organic Evolution.** (3:3:0) Prerequisite: genetics or consent of instructor. Stutz
- 691R. **Graduate Seminar.** (1:1:0 ea.)
- 698R. **Special Problems.** (1-3:0:3-9 ea.)
699. **Thesis for Master's Degree.** (6-9:Arr.:Arr.)
- 740R. **Advanced Topics in Plant Physiology.** (3:2:3) Prerequisites: Bot. 440; Chem. 351. Harrison
742. **Plant Nutrition and Growth.** (3:2:3) Prerequisite: Bot. 440.  
Offered 1974-75 and alternate years.
750. **Desert Ecology.** (2:2:0) Prerequisite: consent of instructor. Murdock, Wood  
Offered 1974-75 and alternate years.
751. **Grassland Ecology.** (2:2:0) Brotherson, Wood  
Field trips to be arranged. Offered 1973 and alternate years.
752. **Forest Ecology.** (2:2:0) Prerequisite: consent of instructor. Harper  
Offered 1973-74 and alternate years.
776. **Population Genetics.** (3:3:0) Prerequisite: genetics. Stutz  
Offered 1973-74 and alternate years.
799. **Doctoral Dissertation.** (Arr.)

## RANGE SCIENCE

### Courses

520. (Agr. Econ.—An. Sci.—Bot.) **Management of Ranch Resources.** 3:2:2). (m)  
Prerequisites: senior or graduate standing and consent of instructor. Vallentine, Shumway, Corbridge  
Team-taught range science, animal science, and agricultural economics. Commercial ranch case study. Management plan developed, consisting of maximum profit practices and enterprise combinations.
561. **Watershed Management.** (3:2:3) Harper, Murdock
- 691R. **Graduate Seminar.** (1:1:0 ea.)

**698R. Special Problems.** (1-3:0:3-9 ea.)

**699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Business Education

**Professors:** Bell (graduate coordinator, 353 JKB), D. Peterson, Waters.

**Associate Professors:** Nelson (chairman, 351 JKB), Perry, B. Petersen, G. Smith, Stoddard, H. Smith, Warner.

**Assistant Professors:** Ashby, Boyer.

**Programs:** Master of Science (M.S.), Doctor of Education (Ed.D.).

**Entrance Examinations Required:** None for Master's Program; Graduate Record Examination and Miller Analogies Test for Doctoral Program.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** Bus. Ed. 320 or equivalent. Background in statistics.

**Fields:** Distributive education, office education.

**Minors Permissible:** Any approved minor.

**Requirements:** Option I: Minimum of 24 semester hours plus thesis (6-hr. min.)  
Option II: Minimum of 38 semester hours (no thesis)

**Required Courses:**

Option I: Bus. Ed. 605, 625, and 3 hours of 515R.

Option II: Bus. Ed. 605, 625, 635, and 3 hours of 515R.

This program is designed to prepare business teachers for junior colleges and other post-secondary institutions and to improve instruction for secondary school business teachers.

### Doctor of Education

**Prerequisites:** Master's degree; one year of professional teaching experience; background work in mathematics, statistics, computer science, and College of Business core requirements.

**Fields:** Business education.

**Minors:** None required.

**Requirements:** Acquisition of professional and/or academic competencies in teaching excellence, research, supervision and administration, and designated subject fields in business education.

**Required Courses:** BE 790R (doctoral seminars); BE 799 (doctoral dissertation); additional course work as determined by advisory committee.

### Courses

**515R. Methods of Instruction in Business Education.** (2-3:Arr.:Arr.)

An analysis of classroom methods, psychology of learning, and research findings pertaining to improvement of instruction in any of the following areas: typewriting, shorthand, bookkeeping, economic education, and distributive and cooperative education.



**530. Current Developments Influencing the Curriculum and Content of Business Education. (2:2:0)**

A study of recent technological developments, such as automation in business, and an analysis of the content, materials, and procedures of business education.

**590R. Seminar in Business Education. (1-2:Arr.:Arr. ea.)**

An intensive clinic emphasizing teaching methodology in one or more selected topics in business education.

**605. Introduction to Research in Business Education. (3:3:0)**

An examination of research methods and procedures applicable to business education, with emphasis on the analysis and evaluation of methodology reflected in existing research.

**625. Tests and Measurements in Business Education. (3:3:0) Prerequisite: Stat. 221 or equivalent.**

A survey of classroom tests and instruments of evaluation used in business education, and an analysis of their uses and methods of construction.

**635. Implications of Research for Improved Classroom Instruction. (3:3:0)**

Review and analysis of recent research in business education, and evaluation of its implications for improved classroom instruction.

**692. Research Project. (1-4:Arr.:Arr.)****694. Independent Readings. (1-2:1-2:0)****699. Thesis for Master's Degree. (6-9:Arr.: Arr.)****790R. Doctoral Seminar. (Arr.)**

Forum for interchanges among faculty and doctoral students that will contribute to the acquisition of professional competencies.

**799. Dissertation. (Arr.)**

## Business Management

**Professors:** E. Christensen, Daines (Director, MBA Program, A-253 JKBA), Dalton, W. Dyer, Edwards, Oaks, Orton, Taylor, Woodfield.

**Associate Professors:** Barnes, Call, S. Covey, Garrison, Lambert, McKinnon, Rick-  
enbach, Ritchie, Stanford, Stoddard, Thompson.

**Assistant Professors:** H. Christensen, Cox, Crawford, Jackson, Lee, Schill, Wistisen.

**Program:** Master of Business Administration (MBA).

**Entrance Examination Required:** Admission Test for Graduate Study in Business offered by the Educational Testing Service, Box 966, Princeton, New Jersey 08540.

**Application Consideration Dates:** Continuously from March 1 to June 30.

**Entry Time:** Fall Semester only.

The MBA program is designed primarily for the non-business management major. Although the candidate will gain a general understanding of the functions and relationships of business, the primary objective of the MBA program is to develop his creative problem-solving skill.

### Master of Business Administration

The Master of Business Administration program awards an MBA degree at the successful completion of a two-year graduate course of study. The summer

months to be used at the discretion of the candidate, although work in industry is encouraged.

The major focus of the MBA is an integration of the managerial functions. The curriculum attempts to fulfill this major task by utilizing the following basic stems of training: (1) administrative, (2) environmental, (3) operations, (4) quantitative-analysis, and (5) communications.

The administrative stem embraces principles of human behavior, organization theory, and business policy. In the environmental stem one is involved with micro- and macroeconomics, government and business, and international business. The operations stem involves production, marketing, and finance. In the quantitative stem a candidate receives an extensive and intensive exposure to mathematics, accounting, statistics, electronic computer programming, and operations research. Finally, in the communications stem, a candidate considers and uses the written word in case analysis and research reports.

This program is demanding in terms of time and intellectual activity. The MBA candidate is expected to—

1. Use quantitative tools and scientific methods in analyzing the problems and policies of the economy and the individual business firm.
2. Communicate effectively.
3. Use sound analysis and perceptive interpretation of economic and social forces.
4. Work with people to achieve individual and organizational objectives.
5. Make sound decisions under conditions of uncertainty.

**Prerequisites:** A bachelor's degree in a nonbusiness management field; five semester hours of college algebra and trigonometry. Beginning calculus recommended.

**Minors Permissible:** None.

**Requirements:** 64 semester hours.

**Required Courses:** Consult departmental brochure.

### Courses

- 610. Managerial Economics. (3:3:0)**  
Analysis of the decision-making behavior of consumers and firms in a market economy.
- 611. Written and Oral Communication I. (1:1:0)**  
Development of skills for effective case writing, management reporting, and oral presentation.
- 612. Mathematics for Business Analysis. (2:3:0)**  
Techniques of mathematics with special emphasis on applications to business situations.
- 613. Computer Language. (1:3:0)**  
Students learn and use a computer language to solve business-related problems.
- 614. Management Control I. (3:3:0)**  
Accounting as a tool for management control. Development of basic accounting concepts essential in the internal planning and control process. Treatment of problems of income determinations and valuation under fluctuating price and economic conditions.
- 616. Organizational Behavior. (3:3:0)**  
Concepts of human relations theory as it relates to personal, interpersonal, group and organization behavior.
- 620. Environmental Economics. (3:3:0)**  
Analysis of national income and its determinants. Fiscal and monetary policies as means of controlling national income.

- 621. Written and Oral Communication II.** (1:1:0)  
Development of skills for effective case writing, management reporting and oral presentation.
- 622. Statistics for Business Analysis.** (2:3:0)  
Review of quantitative measurements to describe data. Concepts of probability, sampling and tests of hypothesis. Introduction to simple and multiple correlation and regression.
- 623. Management Simulation.** (1:2:0)  
Integration of functional areas of business and organizational behavior through use of computer simulation techniques.
- 624. Management Control II.** (3:3:0)  
Accounting as a means of coordinating the operations of a firm with market conditions. Topics included are profit planning through budgetary control, use of accounting data in pricing and production decisions, and impact of the income tax on the management decision process.
- 625. Marketing Management I.** (3:3:0)  
The development of analytical marketing tools and techniques and their utilization in the analysis of cases in the various decision areas of marketing management.
- 627. Operations Management.** (3:3:0)  
Analytical methods for the management of business operations, techniques for the design, operation and control of production systems.
- 628. Business Finance.** (5:5:0)  
Development of the subject of finance from the business manager's point of view. Emphasis on the use of financial statements and developing techniques for the analysis of liquidity, profitability and financial planning. Analytical approach to such concepts as capital budgeting, valuation, reorganization, dividend policy and long-range financial planning. Begins midway through the first semester and continues through the second semester of the first year.
- 635. Marketing Management II.** (3:3:0)  
A strategic approach to product planning, pricing, consumer profiles and market development.
- 636. Management and Organization Development.** (3:3:0)  
Analysis of organization structure and design, organizational motivation and control, and the management of change in organizations.
- 639. Business Policy I.** (3:3:0)  
A top-management approach to the problems of determining corporate strategy.
- 642. Decision Theory.** (1:3:0)  
The focus is on business decision-making under uncertainty, primarily through the use of Bayesian Statistics.
- 643. Computers and Management.** (1:2:0)  
Electronic data processing—its significance for management. The use of computers, techniques of systems designs, and management problems concerned with the mechanization of data processing.
- 652. Advanced Mathematical Analysis for Business Decisions.** (3:3:0)  
A study of quantitative decision models under certainty, risk, and uncertainty.
- 654. Controls III.** (3:3:0)  
Profit planning, cost analysis, and impact of federal income taxes on business decisions.
- 655. Business Research.** (3:3:0)  
Application of research techniques in solving specific problems in marketing and management.

- 657. Systems Analysis and Design.** (3:3:0)  
Business systems analysis and design, as applied to situations ranging from small inter-company functional units to large company-industry interactions. Experience with math modeling, PERT and other simulation techniques.
- 658. Investments.** (3:3:0)  
The principles and practice of investment, with special attention given to the basic principles and techniques of investment analysis and portfolio selection and management. Portfolio policies available to the individual investors are critically appraised.
- 659. New Enterprise Management.** (3:3:0)  
Concepts and skills of entrepreneurship, plus student teamwork with an actual developing enterprise.
- 660. The Business Administrator and Government Policy.** (2:3:0)  
The impact of governmental policies and practices on a business administrator.
- 665. Management of Distribution.** (3:3:0)  
Sales organization; planning and control; selection and training of salesmen; supervision of decentralized operation.
- 668. The Capital Markets: Structure and Analysis.** (3:3:0)  
Organizations and functions of the capital markets in the United States; their relationships to the money markets; historical background; the structure of organized stock exchanges and over-the-counter markets; analysis of significant economic problems and trends in the capital markets, especially contemporary development.
- 675. International Business Management.** (3:3:0)  
Problems and policies of multinational corporations operating in different international economic settings. Topics include financing exports in foreign operations, marketing and market research, and management and personnel practices.
- 678. Seminar in Finance.** (3:3:0) Prerequisite: Bus. Mgt. 658.  
Intensive study of some phase of finance or investment management. The particular topic for study in each section of the seminar will be announced in advance.
- 679. Business, Society, and the Individual.** (3:3:0)  
Ethical concepts in business administration and the influence of business upon the individual and the total social environment.
- 685. Seminar in Marketing.** (3:3:0) Prerequisite: Bus. Mgt. 625.  
A seminar in managerial decision making concerning specific marketing problems in evaluating environmental and market forces, pricing, distribution, and promotion decisions, emphasizing acquisition and use of both behavioral and quantitative information.
- 690. Seminar in Financial Management.** (3:3:0) Prerequisite: consent of instructor.  
Offered alternate semesters.
- 693. Readings and Conference.** (1-3:Arr.:0)  
Subject to be arranged with the instructor.

## Chemistry

**Distinguished Professor:** Hall.

**Professors:** Anderson (graduate coordinator, 124 ESC), Blackham, Broadbent, Bryner (emeritus), Butler, Castle, Cluff, Goates, Gubler (biochemistry coordinator, 659 WIDB), Hawkins (chairman, 225 ESC), Izatt, Mangum, Nelson, Ott, Snow, Swensen, Vernon, White, Wilson.



**Associate Professors:** Bills, Bradshaw, Dalley, Hansen, Mangelson, Pack, Paul, Smith, Thorne, Woolley.

**Assistant Professor:** Nordmeyer.

**Programs:** Master of Science (M.S.), Master of Arts (M.A.-3 Program), Doctor of Philosophy (Ph.D.).

**Entrance Examination Required:** A written examination of the student's undergraduate preparation in chemistry, given the week preceding his initial registration. If a student shows deficiencies, he will be required to take appropriate undergraduate courses.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

**Teaching:** The Chemistry Department relies upon its graduate students for many assignments in laboratory and recitation instruction. Unless a student is excused by the faculty, he will be expected to teach a cumulative total of at least two semesters at 20 hours a week during his residency toward the doctoral degree, half of which must come after his first year in residency. Master's degree candidates are expected to teach half this amount.

#### Master of Science

**Prerequisites:** Undergraduate major in chemistry or the equivalent. Proficiency in French, German, or Russian; or in mathematics beyond calculus; or in computer science.

**Fields:** Analytical-physical chemistry; biochemistry (see Graduate Section of Biochemistry); inorganic chemistry; organic chemistry; physical chemistry.

**Minors Permissible:** Option I or Option II.

**Requirements:** 24 semester hours plus a thesis (6-hr. min.—699).

**Required Courses:** As specified by committee.

#### Master of Arts (M.A.-3 Program)

**Prerequisite:** Undergraduate major in chemistry or the equivalent.

**Requirements:** The department offers the three-year master's degree program wherein the student wishing to prepare for high school or junior college teaching may obtain the Master of Arts degree in chemistry. This program will normally begin at the end of the student's sophomore year. Details may be obtained from the chairman of the Chemistry Department.

**Field:** Chemistry teaching emphasis.

#### Doctor of Philosophy

**Prerequisites:** Bachelor's degree or the equivalent. Proficiency in French, German, or Russian; or in mathematics beyond calculus; or in computer science.

**Fields:** Analytical-physical chemistry; biochemistry (see Graduate Section of Biochemistry); inorganic chemistry; organic chemistry, physical chemistry.

**Minors Permissible:** Any approved minor.

**Requirements:** Approved courses plus a dissertation (18-hr. min.—799).

#### GRADUATE SECTION OF BIOCHEMISTRY

**Professors:** Gubler (chairman and graduate coordinator, 659 WIDB), Mangum, Swensen, Vernon, White.

**Associate Professor:** Smith.

Graduate degrees in biochemistry are administered by the biochemistry faculty of the Chemistry Department. Qualified faculty in other departments may (with approval of the graduate dean) become active members of the graduate section of biochemistry and serve as members or chairmen of graduate advisory committees.

**Programs:** Master of Science (M.S.), Doctor of Philosophy (Ph.D.).

**Entrance Examination Required:** A written examination of the student's undergraduate preparation in chemistry. (Apply to graduate coordinator to schedule this examination.)

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

**Teaching:** Students will be expected to teach a cumulative total of at least two semesters at 20 hours per week.

#### Master of Science

**Prerequisite:** Baccalaureate degree in physical, biological, or agricultural sciences from an accredited college or university. Students with bachelor's degrees in fields other than chemistry should have successfully completed one-year courses in organic and in physical chemistry.

**Fields:** Biochemistry.

**Minors Permissible:** Any established minor in the physical, biological, agricultural, or food sciences; Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** Chem. 462, 581, and 584.

The final oral examination for the M.S. will consist of two parts: (1) a public presentation of the candidate's original research described in his thesis and (2) a comprehensive examination on course work, research, and thesis, administered by the graduate advisory committee.

#### Doctor of Philosophy

**Prerequisite:** Bachelor's degree or the equivalent.

**Fields:** Biochemistry.

**Minors Permissible:** Any established minor in the physical, biological, agricultural, or food sciences, or combination thereof.

**Requirements:** Approved courses plus dissertation (18-hr. min.—799).

#### Courses

**504. Instrumental Analysis.** (2:1:3) Prerequisite: completion of or concurrent registration in Chem. 464.

**514. Inorganic Chemistry.** (3:3:0)

**518. Inorganic Synthesis.** (2:0:6)  
Offered 1975-76 and alternate years.

**521. Analytical Chemistry.** (2:2:0) Prerequisite: Chem. 464.

**522. Chemical Instrumentation.** (2:0:6)

**551. Systematic Identification of Organic Compounds.** (3-4:2:3-6)

**552. Advanced Organic Chemistry.** (3:3:0)

561. **Chemical Thermodynamics.** (3:3:0) Prerequisite: Chem. 462.
562. **Advanced Chemical Thermodynamics.** (2:2:0) Prerequisite: Chem. 561.  
Offered 1975-76 and alternate years.
563. **Reaction Kinetics.** (2:2:0)  
Offered 1975-76 and alternate years.
564. **Nuclear and Radiochemistry.** (2:2:0) Prerequisite: Chem. 462.  
Offered 1975-76 and alternate years.
565. **Introduction to Quantum Chemistry.** (2:2:0) Prerequisite: Chem. 462.
581. **Biochemistry.** (4:4:0) Prerequisite: Chem. 352.
584. **Biochemistry Laboratory.** (2:0:6) Prerequisite: Chem. 581.
- 594R. **General Seminar.** ( $\frac{1}{2}$ :1:0 ea.) Required of all senior A.C.S.-approved majors and graduate students in chemistry every semester in residence.
598. **Special Problems.** (Arr.) Registration by permission.
600. **Directed Teaching in Chemistry.** (1:1:0)
601. **Geometry of Atoms and Molecules.** (2:2:0)  
Offered Winter 1975 and Fall 1976.
611. **Chemistry of Main Group Elements.** (3:3:0)  
Offered 1975-76 and alternate years.
612. **Chemistry of Transitional Elements.** (3:3:0)  
Offered 1974-75 and alternate years.
658. **Organic Synthesis.** (3:1:6)  
Offered Winter 1975 and Fall 1976.
681. **Biochemistry of Lipids.** (2:2:0)
682. **Biochemistry of Nucleic Acids.** (3:3:0)
683. **Biochemistry of Carbohydrates.** (2:2:0)
684. **Biochemistry of Proteins.** (3:3:0)
- 694R. **Biochemistry Seminar.** ( $\frac{1}{2}$ :1:0 ea.)  
Weekly seminar on current topics given by invited guests and by BYU faculty and graduate students. Required of all graduate students in biochemistry every semester in residence.
- 697R. **Master's Candidate Research.** (Arr. ea.)
699. **Thesis for Master's Degree.** (6-9:Arr.:Arr.)
719. **Selected Topics in Inorganic Chemistry.** (1-3:1-3:0)
729. **Selected Topics in Analytical Chemistry.** (1-3:1-3:0)
751. **Mechanisms of Organic Reactions.** (3:3:0)  
Offered Fall 1972, Winter 1974 and Fall 1975.
757. **Chemistry of Natural Products.** (3:3:0)  
Offered 1974-75 and alternate years.
758. **Heterocyclic Compounds.** (3:3:0)  
Offered 1973-74 and alternate years.
759. **Selected Topics in Organic Chemistry.** (1-3:1-3:0)
761. **Statistical Mechanics.** (3:3:0)  
Offered 1974-75 and alternate years.

- 765. Quantum Chemistry.** (3:3:0) Prerequisite: Chem. 565. Recommended: Chem. 501.  
Offered 1975-76 and alternate years.
- 769. Selected Topics in Physical Chemistry.** (1-3:1-3:0)
- 782. Mammalian Biochemistry.** (3:3:0)  
Offered 1975 and alternate years.
- 789. Selected Topics in Biochemistry.** (1-3:1-3:0)
- 797R. Doctoral Candidate Research.** (Arr. ea.)
- 799. Dissertation for the Ph.D. Degree.** (Arr.)

## Child Development and Family Relationships

**Professors:** Cannon, Knowles, Moss (chairman, 1239 SFLC), Porter, Rollins.

**Associate Professors:** Allred, Cahoon, Hoopes, Mead, Price, Scoresby.

**Assistant Professors:** Bahr, Jones, Taylor.

**Programs:** Master of Science (M.S.), Doctor of Philosophy (Ph.D.).

**Entrance Examinations Required:** An oral evaluation interview with all Ph.D. candidates. When a personal meeting is not feasible, additional written information about the student's background and academic goals will be requested. The MMPI is required of all applicants in the marriage and family counseling area.

**Application Consideration Dates:** All sections of the application form for the Fall Semester **must** be in the CDFR Department by March 1. Since the applications have to be processed through the Graduate School before they come to the department, completed applications should be submitted to the Graduate School by January 1. Limited availability for Winter Semester may be considered November 15, depending upon enrollment.

**Entry Times:** Fall and Winter semesters. Background work may be completed during the Spring or Summer terms preceding a Fall Semester entrance.

### Master of Science

**Prerequisites:** An introductory statistics course that includes inferential statistics (i.e., Psych. 370, Sociol. 206, Stat. 221, or Stat. 552 at BYU) and a research methods course (i.e., Psych. 369 or Sociol. 200). In addition, area prerequisites are—

Family Relationships: CDFR 460 and an upper-division undergraduate course in social psychology or sociological theory.

Child Development: CDFR 410 and an upper-division undergraduate course in personality or learning theory.

Marriage and Family Counseling: CDFR 410 or 460, or equivalent, and an upper-division undergraduate course in learning theory.

**Fields:** Child development, family relationships, marriage and family counseling. Special emphasis in early childhood or family life education is currently available as an Option II program.

**Minor Permissible:** Any minor approved by the advisory committee, or Option II.

**Requirements:** Acquire and demonstrate the competence identified for the degree. A departmental graduate student handbook is available in the de-



partment office (1239 SFLC) specifying the competencies, how they may be acquired, and the ways in which they can be demonstrated.

**Required Courses:** As designated by committee.

### Doctor of Philosophy

**Prerequisites:** A master's degree in this or a related field, or the equivalent.

**Fields:** Child development and family relationships, marriage and family counseling.

**Minors Permissible:** Any minor approved by the advisory committee.

**Requirements:** Satisfy University residence identified for the degree (as explained in the departmental student-competency handbook); pass a written comprehensive examination; and complete an acceptable dissertation, including enrollment for 18 hours of dissertation credit.

### Courses

**501R. Workshop in Child Development.** (1-2:1-2 wks., 8 hrs./day:0 ea.) Prerequisite: 8 hours in CDFR or consent of department chairman.

Intensive study in the application of principles of child development and child guidance.

**502R. Workshop in Family Relationships.** (1-2:1-2 wks.; 8 hrs./day:0 ea.) Prerequisite: 8 hours in CDFR or consent of department chairman.

Intensive study in the application of principles of marriage and family relationships.

**503R. Workshop in Marriage and Family Counseling.** (1-2:1-2 wks.; 8 hrs./day:0 ea.) Prerequisite: 8 hours in CDFR or consent of department chairman.

Intensive study in the application of principles of marriage and family counseling.

**514. Theories of Child Development.** (3:3:0) Prerequisite: CDFR 410.

An intensive investigation of theoretical frameworks, models, and concepts of dominant contemporary theories in child development.

**530. Problems of Teaching Marriage and Family Relationships in College.** (2:2:0)

**540. Introduction to Theories of Marriage and Family Counseling.** (3:3:0) Prerequisite: CDFR 460. Recommended: CDFR 461.

Theories and techniques used in marriage and family counseling. Consideration of individual and group counseling as they pertain to the family.

**555A,B. Beginning Practicum in Marriage and Family Counseling.** (3:2:2-4 ea.) Prerequisites: CDFR 540 and consent of instructor.

Experience in organization and administration of family consultation with (A) young children and (B) adolescents.

**560. Advanced Family Relationships.** (3:3:0) Prerequisite: CDFR 460.

Analysis of theories and research about the premarital dyad, marital dyad, and family interaction.

**566. Materials and Procedures in Family Life Education.** (2:2:0) Prerequisite: consent of instructor.

An evaluation of materials, resources, and procedures in teaching family life education in the high school.

**590R. Readings in Child Development and Family Relationships.** (1-2:1-2:0) Prerequisites: CDFR 410 or 460 and consent of instructor.

Discussions and reports of current readings in this field.

- 595R. Special Topics in Child Development and Family Relationships.** (1-2:1-2:0)  
Prerequisites: CDFR 410 or 460 and consent of instructor.  
Individual study for qualified students majoring in child development and family relationships upon consultation with the instructor and the department chairman.
- 596R. Research Methodology.** (3:2:2 ea.) Prerequisites: CDFR 410 or 460; Stat. 552 (concurrent registration permitted).  
Principles of research methodology applied to the identification, evaluation, creation, and utilization of empirical knowledge in child development-family relationships.
- 610. Physical and Intellectual Development of Children.** (3:3:0) Prerequisite: CDFR 514.  
A systematic survey of current theories and research on physical and intellectual development from conception through adolescence.
- 611. Emotional and Social Development of Children.** (3:3:0) Prerequisite: CDFR 514.  
A systematic survey of current theories and research on emotional and social development from conception through adolescence.
- 622R. Supervision and Administration in Early Childhood Education.** (2:2:TBA ea.) Prerequisites: CDFR 210, 323, 422.  
A practicum for developing administrative and supervisory skills in training teachers of preschool children.
- 623. Curriculum Development in Preschool Education.** (2:2:2) Prerequisites: CDFR 323, 422; Ed. 301B. Cahoon, Taylor  
Comparison and evaluation of various preschool curricula; examination of research in preschool curricula; application of preschool curricular innovations; application of criterion tests related to various preschool curricula.
- 630. Parent Education.** (2:2:0) Prerequisite: CDFR 410 or 460.  
Basic principles in organization of parent study programs. Formulation and presentation of program for parents.
- 640. Theories of Counseling Marital Dyads in Groups.** (3:3:0) Prerequisite: CDFR 540.
- 649. Systems Analysis for Marriage and Family Counseling.** (3:2:2) Prerequisites: CDFR 445, 540.  
Application of systems theory strategies in the development of intervention for use with marriages and families.
- 655A,B. Intermediate Practicum in Marriage and Family Counseling.** (4:1:6) Prerequisites: CDFR 540 and consent of instructor.  
Supervised experience and sensitivity training in counseling of (A) marital dyads and (B) groups of marital dyads.
- 660. Dynamics of Parent-Child Interaction.** (2:1:2)  
Development and testing of conceptual models of parent-child interaction.
- 661. Dynamics of Family Interaction.** (2:2:0) Prerequisite: CDFR 560.
- 662. Dynamics of Marital Interaction.** (2:2:0) Prerequisite: CDFR 560.  
Systematic study of the research and theory of man-woman relationships in marriage.
- 663. Critical Problems in Family Life.** (2:2:0) Prerequisite: CDFR 560.
- 665. The Premarital Dyad.** (2:2:0) Prerequisite: CDFR 560.  
Advanced seminar on theories and research related to premarital relationships.
- 691R. Seminar in Child Development.** (1-2:1-2:0 ea.)

- 692R. Seminar in Family Relationships.** (1-2:1-2:0 ea.)
- 696R. Advanced Research Methodology.** (2:1:2 ea.) Prerequisites: CDFR 596R; Stat. 554.  
Application of principles of descriptive and experimental research methods, measurements, and multivariate analysis to research problems in child development and family relationships.
- 697R. Independent Research.** (1-3:1-3:0 ea.) Prerequisites: CDFR 596R; Stat. 554.
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)
- 730. Seminar in Family Life Education.** (2:1:2) Prerequisite: consent of instructor.
- 740. Theory Building in Marriage and Family Counseling.** (3:3:0) Prerequisite: CDFR 540.
- 749. Supervision in Marriage and Family Counseling.** (3:2:2) Prerequisites: CDFR 540, 649.  
Analysis and practice of techniques in the supervision of marriage and family counselors.
- 755A,B. Advanced Practicum in Marriage and Family Counseling.** (1-4:1:6-10 ea.) Prerequisites: CDFR 740 and consent of instructor.
- 760. Concepts and Theories of Marriage and the Family.** (3:3:0) Prerequisite: CDFR 560.
- 791R. Seminar in Child Development.** (1-2:1-2:0 ea.) Prerequisite: must be a Ph.D. candidate in child development.
- 792R. Seminar in Family Relationships.** (1-2:1-2:0 ea.)
- 793R. Seminar in Marriage and Family Counseling.** (1-2:1-2:0 ea.)
- 794. Special Topics in Child Development.** (1-2:1-2:0)
- 795. Special Topics in Family Relationships.** (1-2:1-2:0)
- 799. Dissertation for the Ph.D. Degree.** (Arr.)

## Communications

**Professors:** G. Barrus, Bradley, Burnett, Rich (graduate coordinator, F-563 HFAC), Smith.

**Associate Professors:** Barney, Beckham, Haroldsen (chairman, D-501 HFAC), Richards.

**Assistant Professors:** Hickman, Mills.

**Program:** Master of Arts (M.A.).

**Application Consideration Dates:** March 1, June 1, and November 1 each year.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** A bachelor's degree in communications or allied fields or the equivalent; statistics. Professional experience in the area of communications is highly desirable. Professional competence in written and spoken English is necessary.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** Comms. 610, 611. Comm. 613 recommended.

**Examinations:** Written comprehensive and final oral examination required. The program is designed to prepare qualified students for responsible and creative leadership as mass communication specialists or as teachers in the field. It emphasizes general studies which have common application to a number of professional specializations, including newspaper and magazine editing and publishing, commercial broadcasting, educational broadcasting, advertising, public relations, and communications research. (Full details on the program are available in the Communications Department Guide to Graduate Study.) Students desiring to complete a graduate minor in communications should consult the department chairman or graduate coordinator regarding a recommended program of study.

### Courses

- 501. History of Mass Communications.** (2:2:0)  
Development of the print, film, and broadcast communication media from their beginnings to the present, and their roles as institutions in American society.
- 510. Mass Media Administration.** (2:2:0) Prerequisite: Comms. 312 or 439 or 449.  
Problems of organization and administration for newspapers, magazines, radio stations, and television stations.
- 528. Magazine Editing and Publishing.** (2:2:0) Prerequisite: Comms. 312.  
Principles of layout and design for magazines and business publications. Contemporary practices in content and production.
- 550. Problems and Practices in Educational Television and Radio.** (2:2:0) Prerequisite: advanced standing in communications or education.  
A study of current problems and practices in the utilization and administration of television and radio in education and other noncommercial applications.
- 556. Advanced Program Development and Production.** (2-4:1:3-6) Prerequisite: consent of instructor.  
An advanced course in broadcasting and film production, observing professional standards.
- 580. Comparative World Communication Systems.** (2:2:0)  
Mass media systems in developing authoritarian and free nations. Relationship of these systems to government.
- 581. International Communication Problems.** (2:2:0)  
An examination of the cultural, physical, and governmental barriers to the flow of information between nations. Role of the press in foreign policy. International propaganda.
- 610. Studies in Communication Theory.** (3:3:0) Recommended: Comms. 201 or equivalent; one or more courses in philosophy, psychology, and sociology.  
A study of the historical and philosophical development of communications theory, with special application to problems of the mass media.
- 611. Research Methods in Mass Communication.** (3:3:0) Prerequisites: Stat. 221 or equivalent, Psych. 370, or Sociol. 606.  
Research techniques in communication fields, including readership, readability, and audience measurement. Introduction to thesis writing.
- 613. Literature of Communications.** (2:2:0) Prerequisite: Comms. 610.  
Study and discussion of literature that contributes to the understanding and functioning of communications processes, whatever their origin.
- 615. Propaganda, Public Opinion, and Communications.** (3:3:0)  
Roles of the mass media as channels of propaganda and influences upon public opinion. Effects of public opinion on mass communications.



- 617. Mass Communications and Government.** (3:3:0) Prerequisite: Comms. 307 or Pol. Sci. 361 or 363.  
An examination of the contemporary relationship between government and the mass media, with attention to the philosophical and historical basis for regulation in light of constitutional guarantees.
- 620. Communication and Information Technologies.** (2:2:0) Prerequisite: graduate standing.  
Systems and technologies for encoding, transmitting, processing, and decoding information by electronic-mechanical means; analysis of computer use in new methods of interchanging print and other messages.
- 690. Seminar in Mass Communication.** (1:1:0)
- 691R. Special Studies in Communication.** (1-3:Arr.:Arr. ea.)  
Individual work on approved problems not leading to a thesis. Projects must be approved before registration.
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Computer Science

**Professor:** Carlson.

**Associate Professors:** Beus, Dean (chairman, 222 MSCB), Gardner.

**Assistant Professors:** Ashton, Call, Crandall, Hays, Norman.

**Program:** Master of Science (M.S.).

**Entrance Examination Required:** Graduate Record Examination.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** A bachelor's degree in computer science or equivalent course work in related undergraduate programs.

**Fields:** Formal languages and automata theory, information systems, machine organization, programming systems, theory of computation.

**Minors Permissible:** Option I or Option II as explained in this catalog.

**Requirements:** Minimum of 24 semester hours plus thesis (6 semester hours).

**Required Courses:** None (No graduate credit is given for courses numbered less than 400).

**Examination:** Degree candidates must pass a written and/or an oral examination covering their graduate studies.

Depending on his choice of courses, a graduate can continue towards a Ph.D. in computer science or enter employment in the field of his interest.

**501R. Advanced Topics in Computer Science.** (3:3:1 ea.) (m) Prerequisite: consent of instructor.

Recent developments in computer science.

**510. Formal Languages and Syntactic Analysis.** (3:3:0) (m) Prerequisite: C. S. 431 or consent of instructor.

Definition of formal grammars and algorithms for syntactic analysis.

□ **Mathematics 512. Introduction to Numerical Analysis.** (3:3:0)

- 551. Compiler Theory and Design.** (3:3:1) Prerequisites: C.S. 431 and 432.  
Study and creation in theory and design of compilers and interpreters, including syntax-directed compilers and metacompilers.
- 551. Data-Based Computer Systems.** (3:3:0) (m). Prerequisite: C. S. 351 and Statistics 221.  
Study of data bases and data base management, including: design and evaluation, retrieval languages and systems, information structuring techniques, and data integrity.
- 552. Computer Center Management and Performance Measurement.** (3:3:2) (m)  
Prerequisite: Senior or graduate standing in Computer Science.  
Measurement of computer systems using hard and software monitors. Use of monitor information in systems improvement and future design. Implications for computer center management.
- 555. Computer Graphics.** (3:2:1) (m) Prerequisite: C. S. 431.  
Study of computer graphics techniques developed in recent years including interactive graphics, graphics systems design, two and three dimensional picture drawing and display processors.
- 561. Theoretical Foundations of Computer Science.** (3:3:1) (m) Prerequisite: Math. 210 or equivalent.  
Study of formal languages, automata theory, sequential machines, computability and undecidability, and graph theory.
- **Psychology 570. Computer Use in the Behavioral Sciences.** (3:3:6)
- 571. Discrete Simulations Languages.** (3:3:1) Prerequisites: Psych. 570 or C. S. 231 or 330; Stat. 221.  
Computer simulation utilizing logical, numerical, and Monte Carlo models. Collection and evaluation of statistics on passage times, flow volume, queue lengths, manpower, and equipment utilization.
- 572. Artificial Intelligence and Heuristic Programming.** (3:3:0) (m) Prerequisites: C.S. 330 or 231; Stat. 221.  
Heuristic vs. algorithmic methods; description of cognitive processes; approaches to mathematical invention. Survey of research in theorem proving, game playing, simulation of cognitive processes, etc.
- 581. Advanced Computer Architecture.** (3:3:3) (m) Prerequisites: C. S. 380, C. S. 224 recommended.  
Lecture, discussion, and projects leading to the ability to synthesize innovative and relevant machine organizations.
- 699. Thesis for Master's Degree.** (Arr.:Arr.:Arr.) Prerequisite: consent of committee chairman.

\*The program is new and it is expected that 3 or 4 new courses will be added to produce a full complement.

## Economics

**Professors:** Clark (chairman, 302 JKB), Davies (graduate coordinator, 304 JKB), Doney, Nelson.

**Associate Professors:** Case, Dutton, McDonald, Rickenbach, Wimmer.

**Assistant Professors:** Foster, Koller, Parsons, Pope, Pritchett.

**Program:** Master of Science (M.S.).

**Entrance Examination Required:** Graduate Record Examination (GRE), with advanced examination in economics. Students may be required to take special placement examinations in the prerequisite subject matter areas.

**Application Consideration Dates:** As received until June 15 for Fall Semester, November 1 for Winter Semester, February 25 for Spring Term, and May 1 for Summer Term.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** 6 semester hours of intermediate economic theory, 3 semester hours in principles of statistics, and an introductory calculus course. **D** credit is not acceptable.

There are three master's programs. Courses listed below and taken as an undergraduate cannot be repeated for credit, but another course must be substituted.

#### Program I - Ph.D. Preparation

**Minors Permissible:** Option II only.

**Requirements:** 33 semester hours, major research paper.

**Required Courses:** Econ. 511, 512, 588, 589R; one of the following two series: Stat. 433, 434, or 520, 521; one of the following: Math. 385 or 243.

#### Program II - Junior College Teaching

**Minors Permissible:** Normally a continuation of undergraduate minor or major; Option II.

**Requirements:** 35 semester hours, major research paper.

**Required Courses:** Econ. 330 or 574, 511, 512, 515; Ed. 640, 642, 644, or a secondary teaching certificate.

#### Program III - General Degree

**Minors Permissible:** Option I or Option II.

**Requirements:** 24 semester hours plus thesis.

**Required Courses:** Econ. 511, 512, 515, 588; English 99.

### Courses

**501R. Current Economic Policies and Problems.** (2-3:Arr.:Arr. ea.)

**511. Advanced Theory of Income, Employment, and the Price Level.** (3:3:0) Prerequisites: Econ. 311 and 312; Math. 112 or 141; or consent of instructor.

**512. Advanced Price Theory.** (3:3:0) Prerequisites: Econ. 302 or 312; Math. 112 or 141; or equivalent.

**513R. Seminar in Advanced Economic Theory.** (2-5:Arr.:Arr. ea.) Prerequisite: consent of instructor.

**515. Seminar in the History of Economic Thought.** (3:3:0) Prerequisites: Econ. 311 and 312, or equivalent. Clark, Wimmer

**530. Advanced Economic Development.** (3:3:0) Prerequisites: Econ. 311 and 312, or equivalent. Recommended: Econ. 488 or 588.

**535R. Economic Problems of Selected Areas.** (3-6:Arr.:Arr. ea.) Prerequisites: Econ. 311 and 312, or consent of instructor.

**541. Advanced Comparative Economic Systems.** (3:3:0) Prerequisite: Econ. 312 or equivalent.

**552. Seminar in Urban Economics.** (3:3:0) Prerequisite: Econ. 312, or equivalent.

**553. Theory of Money and Banking.** (3:3:0) Prerequisites: Econ. 311 and 312, or equivalent. Dutton, Foster, Parsons

**558. Theory of International Trade and Finance.** (3:3:0) Prerequisites: Econ. 311 and 312, or equivalent. Recommended: Math 112. Doxey, Foster, Pope

- 562. Manpower Economics.** (3:3:0) (m) Prerequisites: Econ. 111 and 112, or equivalent. Davies  
A study of the efforts to strengthen the economic welfare and contributions of the nation's manpower.
- 563. Economics of the Labor Market.** (2:2:0) Prerequisites: Econ. 111, 112, and 361, or equivalent. Davies  
Wage theory under competitive and noncompetitive conditions; the role of government and labor market policies.
- 564. Advanced Labor Relations.** (2:2:0) Prerequisite: Econ. 361 or consent of instructor. Davies
- 574. American Economic Development.** (3:3:0) Prerequisites: Econ. 311 and 312. Pope, Pritchett, Wimmer
- 575. Theory of Public Finance.** (3:3:0) Prerequisite: Econ. 312 or consent of instructor. Parsons, Rickenbach, Wimmer
- 576. Industrial Organization and Public Policy.** (3:3:0) Prerequisite: Econ. 302 or 312. Koller
- 588. Econometrics.** (3:3:0) Prerequisites: Econ. 311, 312, and 488; Stat. 321, or equivalent. Dutton, McDonald
- 589R. Advanced Mathematical Economics.** (3-6:Arr.:Arr. ea.) Prerequisites: Econ. 311, 312; Stat. 321 or 221; Math. 112 or 141 or equivalent. Dutton, McDonald, Pritchett
- 590R. Advanced Economic Problems.** (1-3:Arr.:Arr. ea.) Prerequisites: Econ. 311 or 312, or equivalent.
- 591. Seminar in Economic History.** (2:2:0) Prerequisite: consent of instructor. Pope, Pritchett, Wimmer
- 597R. Research.** (1-3:Arr.:Arr. ea.)
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Education: Educational Administration

**Professors:** Burrup, Oakes, Ovard, Smith (chairman, 270C MCKB), Van Alfen.  
**Associate Professors:** Cottrell, Hyatt, Stephens, Wasden.

**Programs:** Master of Education (M.Ed.), Educational Specialist (Ed.Sp.), Doctor of Education (Ed.D.).

**Entrance Examination Required:** Graduate Record Examination (aptitude and advanced test in education).

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Education

**Prerequisites:** A valid teaching credential and a minimum of one year of teaching experience.

**Fields:** Community school administration, elementary school administration, secondary school administration.

**Minors Permissible:** Any approved minor; Option II.



**Requirements:** Minimum of 36 semester hours (including a minimum of 8 semester hours outside the Department of Educational Administration); a written comprehensive examination. An oral comprehensive may be required.

**Residence:** At least one full-time registration (9 hours) must be taken on the Brigham Young University campus.

**Credit for Previous Work:** Credit earned in compliance with state certification or renewal requirements must be evaluated and approved by the student's sponsor in order to be applied toward the total credit hour requirements for the master's degree.

**Required Courses:** Consult departmental brochure.

This program is designed to prepare public school administrators for state certification at the elementary and secondary levels and to prepare community school administrators.

### Educational Specialist Certificate

**Admission Requirements:** Students seeking admission to the educational specialist degree program must present evidence of a valid teaching credential, completion of at least two years of teaching or administrative experience, and a master's degree. The Graduate Record Examination (Aptitude and Advanced Test in Education) is prerequisite to admission as a regular degree-seeking student.

**Fields:** Public school administration, supervision.

**Academic and Residence Requirements:** The Educational Specialist degree requires 60 semester hours of work beyond the baccalaureate degree. Degree programs are designed to meet the requirements of the Utah State Board of Education for state endorsements to the Professional Certificate. Twenty-four semester hours and two full-time registrations must be completed on the University campus. Advisory committees, appointed following the admission of the student to the degree program, will assist students in the preparation of a course of study and guide the student in the preparation and writing of the field project.

**Research Project:** All students must demonstrate competency in research design and methodology. Such competency is demonstrated in the writing of a field project acceptable to the student's advisory committee. Students may submit a master's thesis or field project to the major department as evidence of competency in research design and methodology. Departmental approval is required when the student submits a master's thesis or field project to satisfy this requirement.

Students who must satisfy this research design and methodology requirement must complete a research project for the improvement of a school program. The project must meet all standards, format specifications, and be submitted under the schedule and publication requirements of the Graduate School.

**Final Examination:** A final oral and/or written examination covering all course work and the research project will be administered during the final semester of work leading to the Educational Specialist degree.

### Doctor of Education

**Prerequisites:** A valid teaching credential, a minimum of three years of professional experience in education, and a master's degree.

**Fields:** Community college administration, community school administration, public school administration.

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 75 semester hours (including a minimum of 12 semester hours outside the College of Education); proficiency in statistics; a field study (12-hr. min.—799).

**Residence:** At least two consecutive full-time summer sessions must be taken on the Brigham Young University campus, with an intervening supervised field experience of 5 semester hours for each of two semesters (this option open to practitioners enrolled in special programs) **or** two consecutive full-time semesters on the Brigham Young University campus beyond the master's degree.

**Credit for Previous Work:** Credit earned in a recognized master's or Educational Specialist degree program may be applied toward the total credit hour requirement for the doctorate. Credit earned in compliance with state certification or renewal requirements must be evaluated and approved by the student's advisory committee in order to be applied toward the total credit hour requirement for the doctorate.

**Required Courses:** Consult departmental brochure.

This program is designed to prepare public school administrators for service at the elementary, secondary, and community college levels, and for community school administration.

## Education: Educational Psychology

**Professors:** Bauer, Black, Downing, Harris, Jensen, Kelly, Merrill.

**Associate Professors:** Crandell, Gale (chairman, 180 CHLC), Goodman, B. Harrison, G. Harrison, Hendrix, Pinegar, Rohde, Snow, Thomas, Van Mondfrans, Winward, Wootton.

**Assistant Professors:** Bingham, Brown, Buckner, Chamberlain, Hammond, Heaps, Johnson, Kay, Wadham, Walton.

**Programs:** Master of Education (M.Ed.), Master of Arts (M.A.), Educational Specialist (Ed.Sp.), Doctor of Education (Ed.D.), Doctor of Philosophy (Ph.D.).

**Entrance Examinations Required:** Graduate Record Examination (verbal, quantitative, and advanced tests in education) and other area tests as determined by area of study.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration. School psychology majors, Fall Semester only.

### Master of Education

**Prerequisites:** A valid teaching credential and/or appropriate professional experience as determined by major area of study.

**Fields:** Counseling and guidance, educational psychology, instructional media, school psychology, special education.

**Minors Permissible:** Any approved minor; Option II.

**Requirements:** Minimum of 36 semester hours (including a minimum of 8 semester hours outside the Department of Educational Psychology); a written comprehensive examination. An oral comprehensive may be required.

**Residence:** At least one full-time registration must be taken on the Brigham Young University campus.

**Credit for Previous Work:** Credit earned in compliance with state certification or renewal requirements must be evaluated and approved by the student's sponsor in order to be applied toward the total credit hour requirement for the Master of Education degree.

**Required Courses:** Consult departmental brochure.

### Master of Arts

**Prerequisites:** A valid teaching credential and/or appropriate professional experience as determined by major area of study.

**Fields:** Counseling and guidance, educational psychology, instructional media, school psychology, special education. A minor in instructional psychology is available.

**Minors Permissible:** Any approved minor; Option II.

**Requirements:** Minimum of 27 semester hours plus thesis (6-hr. min.—699).

**Residence:** At least one full-time registration must be taken on the Brigham Young University campus.

**Credit for Previous Work:** Credit earned in compliance with state certification or renewal requirements must be evaluated and approved by the student's sponsor in order to be applied toward the total credit hour requirements for the Master of Arts degree.

**Required Courses:** Consult departmental brochure.

### Educational Specialist

**Prerequisites:** A valid teaching credential, a minimum of two years of teaching experience, and a master's degree.

**Fields:** Counseling and guidance, special education.

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 66 semester hours (including a minimum of 10 semester hours outside the College of Education); a field project (6-hr. min.—699).

**Residence:** At least two full-time registrations must be completed on the Brigham Young University campus.

**Required Courses:** Consult departmental brochure.

### Doctor of Education

**Prerequisites:** A valid teaching credential, a minimum of three years of professional experience in education, and a master's degree.

**Fields:** Counseling and guidance, educational psychology, special education.

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 75 semester hours (including a minimum of 12 semester hours outside the College of Education); proficiency in statistics; a field study project (12-hr. min.—Ed. 799).

**Residence:** Two consecutive full-time semesters on the Brigham Young University campus beyond the master's degree; or, as part of an approved intern-program, two consecutive full-time summer sessions on the Brigham Young University campus with intervening supervised field experience.

**Required Courses:** Consult departmental brochure.

### Doctor of Philosophy

**Prerequisites:** A master's degree in education or psychology or the equivalent.

**Fields:** Counseling and guidance, educational psychology, instructional psychology, special education. A minor in instructional psychology is available.

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 24 semester hours plus thesis (18-hr. min.—799); satisfaction of tool subject prerequisites.

**Required Courses:** Consult departmental brochure.

## Education: Elementary Education

**Professors:** R. Allred, Berryessa, Clark, Daines, Harmon, Sucher (chairman, 205 MCKB).

**Associate Professors:** Bishop, Cutler, Dunn, Harms, Moore, Ord, Puckett, Winterrose.

**Assistant Professors:** Anderson, Campbell, Wade, Young.

**Programs:** Master of Education (M.Ed.), Master of Arts (M.A.), Sixth-Year Specialist (Ed.Sp.), Doctor of Education (Ed.D.).

**Entrance Examination Required:** Graduate Record Examination (aptitude and advanced test in education).

**Application Consideration Dates:** Same as Graduate School deadlines for Summer Term.

**Entry Time:** Summer Term.

### Master of Education

**Prerequisites:** A valid elementary teaching credential. The Reading Specialist degree requires three years of professional education prior to graduation.

**Fields:** Elementary curriculum and instruction, reading specialist.

**Minors Permissible:** Option I, any approved minor; Option II.

**Requirements:** Minimum of 36 semester hours; either a written or an oral comprehensive examination.

**Residence:** At least one full-time summer or semester registration must be taken on the Brigham Young University campus.

**Credit for Previous Work:** Up to 10 hours of credit can be applied toward a Master of Education degree. This credit must be evaluated and approved by the student's advisory committee.

**Required Courses:** Consult departmental brochure, available in 201 MCKB.

### Master of Arts

**Prerequisite:** A valid elementary teaching credential. The Reading Specialist degree requires three years of professional education prior to graduation.

**Fields:** Elementary curriculum and instruction, reading specialist.

**Minors Permissible:** Option I, any approved minor; Option II.

**Requirements:** Minimum of 33 semester hours, a final oral examination.



**Residence:** At least one full-time summer or semester registration must be taken on the Brigham Young University campus.

**Credit for Previous Work:** Up to 10 hours of credit can be applied toward a Master of Arts degree. This credit must be evaluated and approved by the student's advisory committee.

**Required Courses:** Consult departmental brochure, available in 201 MCKB.

### **Sixth-Year Specialist**

**Prerequisites:** A valid elementary teaching credential, a minimum of two years of teaching experience, and a master's degree.

**Fields:** Elementary curriculum and instruction, reading specialist.

**Minors Permissible:** Any approved minor; Option II.

**Requirements:** Minimum of 60 semester hours (including a minimum of 10 semester hours outside the College of Education); a field project (6-hr. min.—699).

**Residence:** At least two full-time consecutive semester registrations must be completed on the Brigham Young University campus.

**Credit for Previous Work:** Credit applied toward a Sixth-Year Specialist degree must be evaluated and approved by the student's advisory committee.

**Required Courses:** Consult departmental brochure, available in 201 MCKB.

### **Doctor of Education**

**Prerequisites:** A valid elementary teaching credential, a minimum of three years of professional education experience, and a master's degree.

**Field:** Elementary curriculum and instruction.

**Minors Permissible:** Any approved minor, Option II.

**Requirements:** Minimum of 75 semester hours (including a minimum 12 semester hours outside the College of Education); proficiency in statistics; a field study (12-hr. min.—Ed. 799).

**Residence:** Two consecutive full-time semesters on the Brigham Young University campus beyond the master's degree; or (with approved groups) at least two consecutive full-time summer sessions must be taken on the Brigham Young University campus, with an intervening supervised field experience of 5 semester hours for each of two semesters.

**Credit for Previous Work:** Credit applied toward a Doctor of Education degree must be evaluated and approved by the student's advisory committee.

**Required Courses:** Consult departmental brochure, available in 201 MCKB.

## **Education: Secondary Education and Foundations**

**Professors:** Alley, Asay, Baird, Belt, Holder, Wolfgramm.

**Associate Professors:** Allred (chairman, 111 MCKB), Muse, Wilcox.

**Assistant Professors:** Grossen, Webb.

**Programs:** Master of Education (M.Ed.), Sixth-Year Specialist (Ed.Sp.), Doctor of Education (Ed.D.).

**Entrance Examination Required:** Graduate Record Examination (aptitude and advanced test in education).

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Education

**Prerequisite:** A valid secondary teaching credential.

**Fields:** Comparative and international education, secondary curriculum and instruction.

**Minors Permissible:** Any approved minor; Option II.

**Requirements:** Minimum of 36 semester hours (including a minimum of 8 semester hours outside the Department of Secondary Education and Foundations); a written comprehensive examination and/or an oral comprehensive examination.

**Residence:** At least one full-time registration must be taken on the Brigham Young University campus.

**Credit for Previous Work:** Transfer credit will be evaluated by the department from an official transcript in determining equivalency and relevancy. This includes credit earned in compliance with state certification or renewal requirements.

**Required Courses:** Consult departmental brochure.

### Sixth-Year Specialist

**Prerequisites:** A valid secondary teaching credential, a minimum of two years of successful teaching experience, and a master's degree.

**Field:** Secondary curriculum and instruction.

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 60 semester hours (including a minimum of 10 semester hours outside the College of Education); a field project (6-hr. min.—699).

**Residence:** At least two full-time registrations must be completed on the Brigham Young University campus.

**Credit for Previous Work:** Transfer credit will be evaluated by the department from an official transcript in determining equivalency and relevancy. This includes credit earned in compliance with state certification or renewal requirements.

**Required Courses:** Consult departmental brochure.

### Doctor of Education

**Prerequisites:** A valid secondary teaching credential, a minimum of two years of successful professional education experience, and a master's degree.

**Field:** Secondary curriculum and instruction.

**Minor:** Any approved minor.

**Requirements:** Minimum of 75 semester hours (including a minimum of 12 semester hours outside the Department of Secondary Education and Foundations; proficiency in statistics; a field study project (12-hr. min.—798).

**Residence:** At least two consecutive full-time summer sessions must be taken on the Brigham Young University campus, with an intervening supervised field experience of 5 semester hours for each of two semesters; or two

consecutive full-time semesters on the Brigham Young University campus beyond the master's degree, as determined by the advisory committee.

**Required Courses:** Consult departmental brochure.

### Courses

- 500. Adult Education.** (3:3:0) (m) Prerequisite: student teaching, teaching certificate, or departmental approval.
- 506. Educational Media in the School.** (3:2:3) Prerequisite: Ed. 406.  
Overview of the media field with emphasis on instructional applications.
- 510. Media Production Techniques.** (2:1:3) Prerequisite: Ed. 506.  
An in-depth exploration of the various tools and techniques appropriate to the production of instructional materials.
- 514R. Special Topics in Education.** (1-3:1-3:1 ea.)
- 520. Photography in Instruction.** (2:1:3) Prerequisites: Ed. 506; Comms. 263 or equivalent.  
The processes, techniques, and equipment applicable to the preparation of photographic instructional materials.
- 524. Art and Graphic Processes in Instruction.** (3:2:3) Prerequisite: Ed. 506 or consent of instructor.  
Preparation of instructional materials or reproduction masters using art and graphic processes.
- 526. Instructional Use of Audio Programs.** (2:1:3) Prerequisite: Ed. 509.  
Design, development, and utilization of audio materials and systems for large- and small-group and individual learning.
- 527. Readiness and Beginning Reading.** (2:2:0) (m) Prerequisite: Ed. 400 or teaching certificate.
- 533. Kindergarten Education.** (2:2:0) Prerequisite: CDFR 321, Ed. 400, or teaching certificate.
- 534. Innovative Practices in the Elementary School.** (3:3:1)
- 536. Secondary Curriculum Methods: Introduction.** (3:3:0)  
Analysis of differences among the various curriculum and instructional patterns, emphasizing their impact on individualized learning.
- 547. Foundations in Reading K-12.** (3:3:0) Prerequisite: Teaching certificate or consent of instructor.
- 549. Directed Observation in the Schools.** (2:0:4)  
Directed observation with secondary school pupils. Required for speech therapists who do not have secondary certificates; recommended for teachers who are recertifying and others.
- 550. Counseling and Guidance Services.** (2:2:0) Home Study also.  
Principles and practices of pupil personnel services in the public schools.
- 560. Educational Tests and Measurements.** (3:3:0) Home Study also. Prerequisite: Ed. 403 or equivalent.  
Principles of test construction and use. Interpretation of standardized tests.
- 562R. Curriculum for the Visually Handicapped.** (1-4:Arr.:Arr. ea.) Prerequisites: Ed. 362, 373.  
Problems confronting administrator and teacher in the different types of school programs now available for the visually handicapped. Specialized teaching methods and materials.

- 565. Education of Emotionally Handicapped Children.** (3:3:1) Prerequisites: Ed. 260 and consent of instructor.

Organization of educational programs, curricular development, and teaching methods for students with emotional problems.

- 566. Problems in the Education of Orthopedically Handicapped Children.** (3:3:1) Prerequisites: Ed. 260, 363.

Problems of identification, diagnosis and placement, organization of educational programs, curriculum development, and teaching methods for students with orthopedic handicaps, including the homebound and hospitalized.

- 568A,B,C,D,E. Observation and Participation in Special Education.** (2:1:4 ea.) Prerequisite: consent of instructor.

A—Mentally Retarded; B—Orthopedically Handicapped; C—Visually Handicapped; D—Emotionally Disturbed; E—Hearing Impaired. Observation and participation in classes for handicapped children. Designed to develop readiness for practicum experience. A laboratory fee of \$15 is charged, payable upon application for student teaching.

- 570R. Special Education Graduate Core.** (1-3:Arr.:Arr. ea.) Prerequisite: graduate standing.

Sections to include psychosocial implications of physical, mental, and social disabilities; behavioral science foundations for special education; and basic concepts in the evaluation of individual differences in exceptional children.

- 573. Workshop for Teachers of Bilingual Children.** (2:8 hrs./day for 2 weeks)

Study of educational needs, materials, and methods appropriate to the background and language problems of bilingual students.

- 578R. Practicum in Teaching.** (1-4:Arr.:Arr. ea.)

An application for a specific assignment must be filed with the student teaching office one semester before receiving an assignment. A laboratory fee of \$25 is charged, payable upon application for student teaching.

- 581R. Proseminar in Instructional Psychology.** (3:3:0) (m) Prerequisite: consent of coordinator.

An interdisciplinary survey of topics in instructional psychology. Lectures by several different faculty members.

- 600. Research Design in Education.** (3:3:0) Prerequisite: graduate standing.

- 601. Comparative Current Educational Philosophy.** (3:3:0) (m)

- 603. Educational Classics and Contemporary Issues.** (3:3:0) (m)

- 606. History of Education in Europe and America.** (4:4:0) (m)

- 607. Education in a World Setting.** (2:2:0)

- 608. Social Foundations of Education.** (3:3:0) (m)

- 609. Selection and Utilization of Audiovisual Materials.** (2:2:0)

Students are taught the unique contributions of each audiovisual material, methods of selecting nonbook materials, proper utilization of the items of a teaching situation, and familiarity with various types of instructional materials. The building of a proper collection of audiovisual materials for a school media center is also examined.

- 610. Designing and Producing Instructional Materials.** (2:2:1) Prerequisites: Ed. 510, Psych. 460, and one of the following: Ed. 520, 524, or 526; or consent of instructor.

Designing and producing instructional media kits or projects.

- 611. Coordination of Educational Media.** (2:2:0) Prerequisite: Ed. 509.

Examination of the principles and practices in administering materials,



equipment, and people in the utilization of educational media in a variety of educational settings and levels.

**612R. Supervision of Student Teachers.** (1-3:Arr.:Arr. ea.) Prerequisite: teaching certificate.

**620R. Master's Admission Seminar** (1-3:2:2) Prerequisite: provisional admission to the master's degree.

**622. Advanced Study in Childhood Education.** (2:2:0) Prerequisite: teaching certificate.

Educational theory and analysis of current practices in schools, as related to the significance of early childhood education.

**623. Teaching Science in the Elementary School.** (2:2:0) Prerequisite: teaching certificate.

**625. Teaching Social Studies in the Elementary School.** (2:2:0) Prerequisite: teaching certificate.

**627. Teaching Reading in Curriculum.** (2:2:0) Prerequisite: teaching certificate or consent of instructor.

Reading in the different content areas. Study of comprehension and study skills as developed in kindergarten through grade twelve.

**628. Children's Literature.** (2:2:0) Prerequisite: Ed. 340.

**631. Curriculum Development in the Elementary School.** (3:3:0)

Principles and procedures for organizing the instructional patterns of curriculum organizations; techniques for change, evaluation, and stabilization of curriculum.

**632. Research and Literature in Reading.** (2:2:0) Prerequisites: Ed. 547 and 627.

Study of the history of reading, with emphasis on the research and current literature in the teaching of reading from kindergarten through grade twelve. Offered Summer 1975 and alternate years.

**633. Teaching Language Arts in the Elementary School.** (2:2:0) Prerequisite: teaching certificate.

Modern methods of instruction in listening, speaking, and writing, with their related skills.

**635. Teaching Mathematics in the Elementary School.** (2:2:0) Prerequisite: Ed. 350 (math) or equivalent.

Analysis and evaluation of research and innovations in elementary school mathematics, with some attention to the development of enrichment materials.

**636. Secondary Curriculum and Methods: Design.** (3:3:0) Prerequisite: Ed. 536.

**637. Organization and Supervision of Reading Programs (K-12).** (2:2:0) Prerequisites: Ed. 547, 627.

**640. The Community College.** (3:3:0) Prerequisite: graduate standing.

**642. Methods of College Instruction** (3:3:0) Prerequisite: graduate standing.

**644R. Directed Teaching in College.** (1-4:4:0) Prerequisite: Ed. 642.

A course designed to assist students to become skilled teachers at the two-year and four-year college level, to participate as a member of a college staff and to prepare for employment at a collegiate institution.

**645. Guidance Testing and Diagnosis.** (3:3:0) Prerequisite: Ed. 550.

Study of advantages and disadvantages of particular types of tests; practice in interpreting test results; implications of test choices and usage.

- 646. Counseling Theory and Practice.** (3:3:0) Prerequisite: Ed. 550.  
Includes an intensive study of the various theories of counseling, important concepts and views of counseling authorities, current research and accepted practices.
- 647. Group Techniques for Counselors.** (3:3:0) Prerequisite: Ed. 646.  
Principles of group guidance and their application.
- 648. Laboratory in Counseling Practice.** (1:0:2) Prerequisite: completion of, or concurrent registration in, Ed. 550, 646.  
Laboratory and field experiences in counseling techniques and procedures.
- 650. Guidance Workshop.** (2:2:0) Prerequisite: Ed. 550.
- 651. Informational Services in Guidance.** (3:2:2-4) Prerequisite: Ed. 550.  
Techniques and theories of vocation selection and utilization of community resources, occupational data and psychological factors underlying career choices.
- 652. Organization of Guidance.** (2:2:0) Prerequisite: Ed. 550.  
Procedures of organizing and administering guidance programs.
- 653. Student Personnel Services in Higher Education.** (2:2:0) Prerequisite: Ed. 550.
- 654. Elementary School Guidance.** (2:2:0)  
An intensive consideration of the problems of conducting a guidance program in the elementary school.
- 655. Laboratory for Guidance Services.** (1:0:2) Prerequisite: completion of, or concurrent registration in, Ed. 652.  
Laboratory and field experiences in the organization and administration of guidance services.
- 656. Advanced Educational Psychology.** (3:3:1) Prerequisite: Ed. 403.
- 657. Behavior Problems in the Schools.** (2:2:0) Prerequisite: Ed. 403.  
Study of mental hygiene principles and their application to typical classroom problems.
- 659. Basic Principles of Instructional Psychology.** (3:3:2) Prerequisite: Psych. 460 or equivalent.  
Basic principles of instructional development and their application to the design, development, and evaluation of instructional systems.
- 660. Research Design and Technical Writing in Education.** (3:3:0) Prerequisite: Stat. 552.  
A study of research techniques and designs in the field of education.
- 661. Experimental Research in Instructional Psychology.** (3:2:4) Prerequisite: Stat. 554 or 501; or Psych. 670.  
Review of experimental literature and the design and execution of an experimental study.
- 662R, 663R. Advanced Topics in Special Education.** (1-3:Arr.:Arr. ea.) Prerequisite: Ed. 570.  
Sections to include Mental Retardation, Learning Disabilities, Visually Handicapped, Emotionally Disturbed, and Curriculum Planning.
- 664R, 665R. Learning Disabilities.** (2:1:2 ea.) Prerequisite: Ed. 570.  
Diagnostic teaching, prescriptive teaching, psycholinguistics, sensory-motor, and perception.
- 666. Special Education Services in Public Schools.** (2:2:0) Prerequisite: Ed. 570R.  
Problems of organization, administration, and supervision of special education services in the public schools.

- 667. Diagnosis of Achievement Difficulties.** (3:2:2) Prerequisite: consent of instructor.  
Survey and use of diagnostic techniques in identification and evaluation of achievement difficulties.
- 668. Remedial Teaching Techniques.** (3:2:2) Prerequisites: Ed. 667 and consent of instructor.  
Procedures and materials appropriate for remediation of achievement difficulties, with major emphasis in reading.
- 669. Guidance and Counseling for the Handicapped.** (2:2:0) Prerequisite: Ed. 260.  
Principles and techniques of guidance services for the physically, mentally, or socially handicapped, with study of effective counseling techniques. Required for California certification.
- 671. Practicum in Testing and Counseling.** (5:2:10) Prerequisite: consent of instructor.
- 672. Practicum in School Psychology.** (4:2:8) Prerequisite: consent of instructor.  
Analysis of the role of the school psychologist. Supervised practice in testing, diagnosis, and casework with school-age children in a clinic setting.
- 673R. Practicum in Educational Psychology.** (2-4:1-2:4-8 ea.) Prerequisite: consent of instructor.  
Sections to include counseling and guidance, school psychology, remedial teaching, special education, and instructional media.
- 674. Advanced Seminar in Special Education.** (1-3:Arr.:Arr.) Prerequisite: Ed. 570R.
- 675. Organization and Administration of Public Schools.** (3:3:0) (m) Prerequisite: graduate standing.  
An introduction to the principles, practices, and procedures in modern public school administration.
- 677. Public School Finance.** (3:3:0) (m) Prerequisite: Ed. 675.  
The theory, principles, and general practices of public school finances.
- 678. Elementary School Administration.** (3:3:0) (m) Prerequisite: Ed. 675.  
Understanding the leadership role of the principal in organizing and adapting the elementary school program to the educational needs of youth.
- 679. Secondary School Administration.** (3:3:0) (m) Prerequisite: Ed. 675.  
Understanding the leadership role of the principal in organizing and adapting the secondary school program to the educational needs of youth.
- 680R. Internship in Education.** (2-6:0:6-18 ea.) Prerequisite: consent of instructor eight weeks in advance of registration.
- 682. The Teacher and School Administration.** (2:2:0) (m) Prerequisite: Ed. 678 or 679.
- 685. Supervision of Education.** (3:3:0) (m) Prerequisite: Ed. 675.  
The principles of supervision, curriculum, planning, and in-service training in the improvement of instruction.
- 687. School Law.** (2:2:0) (m) Prerequisite: Ed. 675.
- 690R. Seminar.** (2:2:0 ea.) Prerequisite: consent of instructor.
- 691. Doctoral Admission Seminar.** (2:2:0 ea.) Prerequisite: consent of instructor.
- 693R. Independent Reading.** (1-5:Arr.:Arr. ea.) Prerequisite: consent of instructor.
- 696R. Independent Research.** (1-4:Arr.:Arr. ea.) Prerequisite: consent of instructor.

- 698R. Field Project.** (2-4:Arr.:Arr.) Prerequisites: Stat. 552 and Ed. 551, or equivalent.
- 699R. Thesis for Master's Degree.** (6-9:Arr.:Arr.)
- 709. Educational Planning and Decision Process.** (3:2:2) (m)
- 712. Media in Instructional Systems.** (3:3:0) Prerequisite: Ed. 509.  
An advanced course in the application of instructional media design and selection principles to the instructional development process.
- 727. Curriculum of the Public Schools.** (2:2:0)
- 731. Systems Analysis and Research Development Management.** (3:3:0) (m)  
Prerequisite: Comput. Sci. 131 or equivalent.  
Use of systems analysis to manage complex operations. Techniques for planning, budgeting, and organizing research and development; and managing complex instructional systems.
- 740. Advanced Counseling Theory.** (2:2:0) Prerequisites: Ed. 646; Psych. 550.
- 741. Practicum in Counseling.** (3:1:8) Prerequisite: consent of instructor.  
Experience in counseling in a center. Open only to advanced doctoral students.
- 751. Research Design for Doctoral Dissertation.** (2:2:4). Prerequisite: Doctoral candidacy and Stat. 552 or equivalent.
- 760R. Contemporary Problems of School Administration.** (2:2:0) (m) Prerequisite: Ed. 678 or 679.  
Section 1: elementary school; Section 2: secondary school.
- 761. Problems in Secondary School Administration.** (2:2:0)  
Identification and selection of major problems of the modern secondary school principal; systematic and wise solution of major problems which affect the operation of the school.
- 762. The Intermediate School.** (2:2:0)  
History, purposes, organization, present practices, and problems.
- 765. Business Administration of the Public School.** (2:2:0) (m) Prerequisite: Ed. 677.
- 768. Leadership in Educational Administration.** (3:3:0) (m)  
A study of developmental leadership theory, group processes, concepts, and strategies essential to successful administration leadership, with opportunity for some leadership experience.
- 769. School-Community Relations.** (2:2:0) Prerequisite: Ed. 675.
- 770. Administration of Continuing Education.** (2:2:0) (m) Prerequisite: graduate standing.
- 771. Community College Administration.** (2:2:0) (m) Prerequisite: Ed. 640.  
A study of the organizational structure and administration of the junior college.
- 773. Public School Building Programs.** (3:3:0) (m) Prerequisite: Ed. 677 or 687.
- 775. Theory in Educational Administration.** (2:2:0) (m) Prerequisite: Ed. 675.
- 780R. Internship in Education.** (2-8:0:6-24 ea.) Prerequisite: consent of instructor eight weeks in advance of registration.
- 790R. Seminar.** (2:2:0 ea.) Prerequisite: consent of instructor.
- 791A,B,C. Seminar.** (2:2:0 ea.)  
A—Administration and Curriculum; B—Special Services; C—Research and Field Services.



**796R. Advanced Research.** (2-4:Arr.:Arr. ea.) Prerequisite: consent of instructor.

**798. Dissertation for Ed.D. Degree.** (9)

**799R. Dissertation.** (Arr.) Prerequisite: Ed. 751 or equivalent.

## ENGINEERING SCIENCES

### Ph.D. Program in Engineering

**Executive Committee:** Hanks (chairman, 350G ESTB), Heaton, Karren, Woodbury.

The Ph.D. program in engineering is an interdepartmental program administered by an executive committee of the engineering faculty. The course work offered in this program is listed separately under each of the four participating engineering departments (Chemical, Civil, Electrical, and Mechanical). The faculty consists of the graduate faculty of the four engineering departments.

The master's programs in engineering are administered by each department separately but are coordinated with the Ph.D. program for those who wish to continue beyond the master's level.

**Program:** Doctor of Philosophy (Ph.D.).

**Entrance Examination Required:** Qualifying examination. The student should contact the chairman of the Executive Committee for details.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Doctor of Philosophy

**Prerequisites:** B.S., BES, or M.E. degree in engineering or the equivalent. Tool preparation: satisfactory completion of Options I, II, or III as follows:

1. Stat. 501 (5) plus any one of Stat. 337 (3), Stat. 502 (5), Stat. 531 (3), or Stat. 534 (3).
2. Stat. 421 (3) plus Stat. 501 (5).
3. Stat. 321 (3) or 332 (2), Stat. 421 (3), plus any one of Stat. 422 (3), 432 (3), 433 (3), or 541 (3).
4. Comput. Sci. 231 (3) and 580 (4).

or

Option IV: 21 semester hours of mathematics (beyond and excluding Math. 111 or its equivalent) and/or computer science in any combination.

**Fields:** Chemical Engineering: Combustion, environmental control, fluid mechanics (with Mechanical Engineering), nuclear engineering (with Physics), thermodynamics.

Civil Engineering: Highway engineering, structures and structural mechanics, water resources and environmental engineering.

Electrical Engineering: Communications engineering, computer engineering, nuclear engineering, solid-state electronics.

Mechanical Engineering: Applied mechanics, machine design, manufacturing, nuclear engineering (with Physics), thermosciences.

**Requirements:** Approximately 50 hours beyond bachelor's degree, plus dissertation (18-hr. min.—799); 12 semester hours of the minor in advanced mathematics in addition to tool requirements unless waived by committee.

## Engineering: Chemical Engineering Science

**Distinguished Professor:** Hall.

**Professors:** Barker, Christensen, Coates, Hanks (graduate coordinator, 350G ESTB), Horton, Pope, Smoot (chairman, 350F ESTB).

**Associate Professors:** Glassett, Wilson.

**Assistant Professor:** Bartholomew.

**Program:** Master of Engineering (M.E.), Master of Science (M.S.). (Students anticipating doctoral work in this area see "Doctor of Philosophy" above.)

**Entrance Examinations Required:** U.S. citizens: none. Foreign nationals: Graduate Record Examination (verbal, aptitude, and advanced engineering). At the department's discretion, a special entrance screening examination may be required.

**Application Consideration Dates:** U.S. citizens: as received. Foreign nationals: April 1 each year.

**Entry Times:** U.S. citizens (M.E., M.S., or Ph.D.), foreign nationals having M.S. degree and seeking Ph.D.: any semester or term. Foreign nationals (master's level): Fall Semester only.

### Master of Engineering

This degree is designed to provide advanced engineering training at the master's level with emphasis on management, design, and synthesis. This is partly accomplished by choice of courses and partly by the special project (3 hrs., 688R). Because no research project or thesis is required, the student does not receive special training for research work. Students desiring such training should consider the M.S. or Ph.D. programs.

**Prerequisites:** B.S. degree (or equivalent) in chemical engineering from an AIChE-accredited school. B.S. degree in other engineering, chemistry, physics, materials science, or metallurgy is acceptable for provisional admission. Consult departmental brochure for further details.

**Fields:** Combustion, environmental control, fluid mechanics (with Mechanical Engineering), nuclear engineering (with Physics), thermodynamics.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 30 semester hours including special project (3 hr. min.—688R).

**Required Courses:** Chem. Eng. 673 (3), 677 (1), 681 (3), 691R (1—each semester), 688R (3 min.), Chem. 561 (3), Options/Minor (16-18).

For requirements for the Option/Minor special programs, see departmental brochure.

### Master of Science

**Prerequisites:** B.S. degree (or equivalent) in chemical engineering from an AIChE (American Institute of Chemical Engineering) accredited school. B.S. degree in other engineering, chemistry, or physics is acceptable for provisional admission.

**Fields:** Combustion, environmental control, fluid mechanics (with Mechanical Engineering), nuclear engineering (with Physics), thermodynamics.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** Chem. Eng. 673 (3), 677 (1), 681 (3), 691R (1—each semester); Chem. 561 (3).

For requirements of special programs, see departmental brochure.

## Courses

582. **Introductory Nuclear Engineering.** (3:3:0) Prerequisites: Chem. 106 or 112; Math. 214; Physics 221. Barker  
Principles and application of nuclear reactor design.
583. **Nuclear Engineering.** (2:2:0) Prerequisite: Chem. Eng. 582. Barker  
Reactor design, including reactor physics, heat transfer, engineering materials, instrumentation, and control.
672. **Advanced Fluid Mechanics and Rheology.** (3:3:0) Prerequisites: Math. 645; Chem. Eng. 673. Hanks  
Proper formulation of constitutive equations; non-Newtonian flow, stability, turbulence, drag reduction, nonisothermal flow, and heat transfer. Offered on demand.
673. **Transport Phenomena.** (3:3:0) Prerequisites: Chem. Eng. 476; Math. 323. Hanks, Smoot  
General differential equations of conservation of mass, heat, and momentum; transport coefficients; turbulent flow; interphase transfer, etc.
674. **Advanced Thermodynamics and Calorimetry.** (2:2:0) Prerequisite: Chem. 561. Christensen  
Advanced thermochemistry, including application to measurement of heats of mixing, heat of reaction, equilibrium constant, etc. Offered on demand.
675. **Thermodynamics of Multicomponent Systems.** (3:3:0) Prerequisite: Chem. 561. Christensen, Hanks  
Thermodynamic analysis of nonideal multicomponent solutions, prediction of activities and fugacities, thermodynamic consistency of data, development of correlating equations. Offered on demand.
676. **Advanced Diffusional Operations.** (3:3:0) Prerequisites: Chem. Eng. 673; Chem. 561; Math. 323. Pope  
General theory of differential and stagewise diffusional and separations operations; multicomponent distillation extraction, absorption; solution of complex problems; column design and instrumentation. Offered on demand.
677. **Creative Skills in Chemical Engineering.** (1:1:0) Barker, Horton  
Application of creativity and prior course work to the solution of relevant open-end problems.
681. **Kinetics and Catalysis.** (3:3:0) Prerequisite: Chem. Eng. 478. Horton, Pope  
Application of fundamental theories of chemical kinetics and transport phenomena to the design of chemical reactors.
683. **Advanced Plant Design and Economics.** (2:2:0) Prerequisite: Chem. Eng. 464. Glassett, Pope  
Comprehensive design of chemical plants including feasibility and market surveys, economic evaluations, raw materials, plant layout, process design, instrumentation, materials of construction. Offered on demand.
- 688R. **Special Topics.** (1-3:Arr.:Arr. ea.)  
Investigation of problems of special interest. Offered on demand.
- 691R. **Seminar for Master's Students.** (1:1:0 ea.)  
Technical presentations by graduate students, faculty members, and invited guests.
- 697R. **Research for Master's Students.** (Arr. ea.)
699. **Thesis for Master's Degree.** (6-9:Arr.:Arr.)
- **Chemistry 769. Selected Topics in Physical Chemistry.** (1-3:1-3:0)
- 788R. **Selected Topics in Chemical Engineering.** (1-3:Arr.:Arr. ea.)  
Courses taught in this class will be based on research interest of faculty and students and will include such courses as kinetics and transport in

reacting multicomponent flow systems with application to contract reactor systems, free jets, particle-laden stream, plasmas, etc. Offered on demand.

**791R. Seminar for Doctoral Students.** (1:1:0 ea.)

**799. Dissertation for Doctoral Students.** (Arr.)

## Engineering: Civil Engineering Science

**Professors:** C. Barton, J. Barton (chairman, 368 ESTB), Budge, Christiansen, Enke, Firmage, Fuhrman, Jacobson, Karren, Rollins, Stutz.

**Associate Professor:** Wilson.

**Assistant Professors:** Durrant (graduate coordinator, 368B ESTB), Merritt.

**Programs:** Master of Science (M.S.), Master of Engineering (M.E.). (Students anticipating doctoral work in this area are referred to page 104 for details.)

**Entrance Examination Required:** Graduate Record Examination required for applicants from non-ECPD (Engineers' Council for Professional Development) accredited schools.

**Application Consideration Dates:** May 1 for Fall Semester; same as Graduate School deadlines for other semester and terms.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** A bachelor's degree in civil engineering or its equivalent. (Students with other backgrounds will also be considered.)

**Fields:** Highway engineering, structures and structural mechanics, water resources and environmental engineering.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 25 semester hours plus thesis C. E. 699 (6-hr. min.).

**Required Course:** Civ. Eng. 691R (1).

### Master of Engineering

**Prerequisite:** A bachelor's degree in civil engineering or its equivalent. (Students with other backgrounds will also be considered.)

**Fields:** Highway engineering, structures and structural mechanics, water resources and environmental engineering.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 28 semester hours plus a project C. E. 698 (3-hr. min.).

**Required Course:** Civ. Eng. 691R (1).

### Courses

**501. Advanced Mechanics of Materials.** (3:3:0) Prerequisite: Civ. Eng. 303.

Introduction to strain energy methods; stresses and strains in beams, curved members, beams on elastic foundations, thick cylinders, and torsion and structural members.



- 502. Advanced Properties of Materials.** (3:3:0) Prerequisite: Civ. Eng. 305 or equivalent.  
Mechanics of deformation and fracture of solids; mechanical behavior of materials correlated with atomic scale mechanisms; creep, residual stresses, and fatigue.
- 503. Applied Elasticity.** (3:3:0) Prerequisites: Civ. Eng. 303; Math. 321.  
Analysis of stress and strain; equations of equilibrium and compatibility; generalized Hooke's Law; energy theorems.
- 505. Concrete—Its Materials, Uses, and Properties.** (3:2:3) Prerequisite: Geol. 330.  
Manufacture and testing of cements; concrete materials and concrete mix design; techniques of concrete handling, placing, and treatment; laboratory work.
- 507. Experimental Stress Analysis.** (3:2:3) Prerequisite: Civ. Eng. 303.  
Experimental methods of stress determination and their application to resistance static engineering problems. Mechanical gages; brittle lacquers; electric strain gages; photoelasticity and photostress techniques.
- 513. Photogrammetry.** (3:2:3) Prerequisite: Civ. Eng. 212.  
Use of terrestrial and aerial photographs to produce maps; vertical and oblique photography and mapping procedures; stereoscopic viewing and measurements for relative position of objects in three dimensions; photo interpretation; sources of errors.
- 527. Matrix Methods in Structures.** (3:2:3) Prerequisite: Civ. Eng. 422.  
Development of the stiffness and flexibility methods of structural analysis using linear algebra and the digital computer.
- 528. Finite Element Analysis.** (3:3:0) Prerequisite: Civ. Eng. 527 or consent of instructor.  
Development of finite elements for an elastic continuum; applications using matrix algebra; consideration of plates, shells, and frameworks using the digital computer.
- 531. Water Resources Engineering.** (3:2:3) Prerequisites: Civ. Eng. 431, 432.  
Principles of planning and basic design of hydroelectric, flood control, irrigation, drainage, and multipurpose projects involving the utilization of water resources.
- 550. Water Quality Management.** (3:3:0) Prerequisite: consent of instructor.  
Philosophies, objectives, and methods of water quality management; impact of various uses on water quality; behavior of pollutants in receiving waters.
- 555. Sanitary Engineering Analysis.** (3:1:6) Prerequisites: Civ. Eng. 451; Micro. 381; or equivalent.  
Analytical techniques involved in chemical and biological analysis of the major organic and inorganic constituents of water, sewage, and industrial wastes.
- 561. Highway Design.** (3:2:3) Prerequisite: Civ. Eng. 461.  
Theory and practice in highway design. Highway classification, design controls, and criteria. Location studies; design of vertical and horizontal alignment, cross-section, pavement, drainage, intersections, and interchanges. Multilane facilities.
- 610. Theory and Design of Plates.** (3:3:0) Prerequisite: Civ. Eng. 303.  
Theory and analysis of thin plates of moderate thickness; membrane theory; anisotropic considerations.
- 612. Structural Stability.** (3:3:0) Prerequisite: Civ. Eng. 303.  
Elastic and inelastic buckling of columns; analysis of beam columns; torsional-flexural buckling, and buckling of thin plates and cylindrical shells.

- 615. Structural Dynamics.** (3:3:0) Prerequisite: Civ. Eng. 304.  
The study of free and forced, damped and undamped, lumped parameter, and multiple degree-of-freedom linear structures. Approximate methods for nonlinear structures; applications to frameworks and beams.
- 620. Advanced Structures—Theory and Design.** (3:3:0) Prerequisites: Civ. Eng. 423, 424.  
Advanced topics in structural theory and design: arches, frames, continuous structures on elastic supports, plastic design theory.
- 621. Thin Shell Structures.** (3:3:0) Prerequisites: Civ. Eng. 422, 424.  
Theory and design methods related to domes, arches, solid-plate, and hyper structures.
- 622. Design of Bridge Structures.** (3:2:3) Prerequisites: Civ. Eng. 341, 422, 423, 424.  
Design of bridge structures: floor systems, composite and continuous beams and girders, trusses, piers, and abutments.
- 623. Prestressed Concrete.** (3:3:0) Prerequisites: Civ. Eng. 422, 424.  
Basic theory of prestressed concrete, pre- and posttensioning methods. Details of design and fabrication, applications to continuous structures.
- 625. Design of Multistory Structures.** (3:2:3) Prerequisites: Civ. Eng. 341, 422, 423, 424, or consent of instructor.  
Shear walls, floors, columns, frames, and foundations, using elastic and plastic methods. Frame response to lateral forces.
- 632. Advanced Hydrology.** (3:3:0) Prerequisites: Civ. Eng. 431, 432 or equivalent.  
Theory and application of advanced hydrologic principles to engineering design and investigations.
- 633. Hydraulic Design of Water Control Structures.** (3:3:0) Prerequisite: Civ. Eng. 432.  
Principles of design of dams and appurtenant works and other water control structures.
- 634. Flow in Open Channels.** (3:3:0) Prerequisite: Civ. Eng. 332.  
Principles of water flow in artificial and natural open channels, and application to practical problems.
- 641. Advanced Soil Mechanics.** (3:3:0) Prerequisites: Civ. Eng. 341, 442 or equivalent.  
Advanced topics in soil mechanics including stress distribution in earth masses, the shearing strength of soils, consolidation theory, settlement analysis, stability of slopes, and the bearing capacity of soils.
- 643. Earth- and Rock-Fill Structures.** (3:3:0) Prerequisite: Civ. Eng. 341 or equivalent.  
Design and construction of earth- and rock-fill dams; selection of dam-sites; selection of materials; seepage and pore pressure studies; shearing strength data; stability analysis; construction controls.
- 644. Advanced Foundation Engineering.** (3:3:0) Prerequisite: Civ. Eng. 641.  
Foundation engineering techniques of subsurface investigation, determination of the allowable soil pressures for footings; design of spread footings; raft formation; and pile foundation.
- 646. Flow of Fluids through Porous Media.** (3:3:0) Prerequisites: Civ. Eng. 332, 341.  
Fluid flow in saturated and unsaturated anisotropic media. Darcy's Law and Navier-Stokes equations. Potential theory and conformal mapping; analogue solutions.
- 652. Design of Water Treatment Works.** (3:3:0) Prerequisite: Civ. Eng. 555 or equivalent.  
Water purification and treatment for culinary, municipal, and industrial uses.

653. **Design of Sewage Treatment Works.** (3:3:0) Prerequisite: Civ. Eng. 451 or equivalent.

Design of sewage disposal and treatment works.

654. **Industrial Waste Treatment.** (3:3:0) Prerequisites: Civ. Eng. 555, 651, or equivalent.

Treatment and disposal of industrial wastes; studies of basic industries and their waste problems.

661. **Traffic Engineering—Theory of Flow and Geometric Design.** (3:3:0) Prerequisite: Civ. Eng. 461 or equivalent.

Characteristics of motor-vehicle traffic; theory of traffic flow; freeway operations and traffic regulations; design of highways and parking facilities, at-grade intersections, interchanges, channelizations, parking lots and garages.

663. **Pavement Design.** (3:3:0) Prerequisite: Civ. Eng. 461 or equivalent.

Properties and selection of pavement components, including soils, stabilized soil, base, subbase, subgrade, and bituminous materials. Design of rigid and flexible pavements.

- 691R. **Civil Engineering Seminar.** ( $\frac{1}{2}$ :1:0 ea.)

- 694R. **Selected Problems in Civil Engineering.** (1-3:Arr.:Arr. ea.)

- 697R. **Research in Civil Engineering.** (2:Arr.:Arr. ea.)

698. **Engineering Projects.** (3:Arr.:Arr.) Prerequisite: registration in Master of Engineering program.

Investigation, study, and presentation of a technical engineering report in an area of civil engineering. The project must be approved by the graduate committee.

699. **Thesis for Master's Degree.** (6-9:Arr.:Arr.)

- 794R. **Selected Topics in Civil Engineering.** (1-3:Arr.:Arr. ea.)

- 797R. **Research for Doctoral Students.** (Arr. ea.)

799. **Dissertation for Doctoral Students.** (Arr.)

## Engineering: Electrical Engineering Science

**Professors:** Berrett, Clegg, Humphreys, Jonsson, Losee (chairman, 459 ESTB), Woodbury (graduate coordinator).

**Associate Professors:** Bowman, Chaston, Miner, Monson.

**Assistant Professor:** Bearnson.

**Programs:** Master of Science (M.S.), Master of Engineering (M.E.). (Students anticipating doctoral work in this area are referred to page 97 for details.)

**Entrance Examinations Required:** None.

**Application Consideration Dates:** June 30 and Nov. 15.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** B.S. degree at a recognized school (accredited by the Engineers' Council for Professional Development). If the school is not accredited, the student must submit results of the Graduate Record Examination (advanced test in engineering).

**Fields:** Communication engineering, computer engineering, nuclear engineering, solid-state electronics.

**Minors Permissible:** Option II only.

**Requirements:** Minimum of 24 semester hours (including 6 hours in mathematics and/or statistics) plus thesis (6-hr. min.—699).

**Required Courses:** The following courses are normally required for the areas of specialization indicated:

#### Computer

|                |                |
|----------------|----------------|
| Elec. Eng. 513 | Elec. Eng. 526 |
| Elec. Eng. 521 | Elec. Eng. 621 |
| Elec. Eng. 525 | Elec. Eng. 524 |

Other Courses from Math, Computer Science and Elec. Engineering

#### Solid-State Electronics

|                 |                |
|-----------------|----------------|
| Elec. Eng. 513  | Elec. Eng. 551 |
| Elec. Eng. 550  | Elec. Eng. 560 |
| Elec. Eng. 552R | Elec. Eng. 646 |

#### Communications

|                |                |
|----------------|----------------|
| Elec. Eng. 513 | Elec. Eng. 561 |
| Elec. Eng. 560 | Elec. Eng. 566 |
| Elec. Eng. 664 | Elec. Eng. 665 |

#### Power Systems

|                |                |
|----------------|----------------|
| Elec. Eng. 513 | Elec. Eng. 532 |
| Elec. Eng. 531 | Elec. Eng. 533 |
| ChE 582        | Math 322       |
| Mech. Eng. 322 | Elec. Eng. 360 |

### Master of Engineering

**Prerequisites:** B.S. degree at a recognized school (accredited by the Engineers' Council for Professional Development). If the school is not accredited, the student must submit results of the Graduate Record Examination (advanced test in engineering).

**Fields:** Communication engineering, computer engineering, nuclear engineering, solid-state electronics.

**Minors Permissible:** Option II only.

**Requirements:** 27 semester hours (including 6 hours in mathematics and/or statistics) plus a project (3-hr. min.—697R).

**Required Courses:** See listing under Master of Science for each field of interest.

### Courses

- 411. Feedback Concepts.** (3:3:0) Prerequisites: Civ. Eng. 304; Math. 321; either Elec. Eng. 302 or 431; 304 or 341. Jonsson
- 431. Electrical Energy Conversion.** (4:3:3) Prerequisite: Elec. Eng. 311. Magnetic circuits, transformers, and energy conversion principles.
- 442. Electronic Circuits and Devices II.** (4:3:3) Prerequisite: Elec. Eng. 341.
- 450. Electrical Properties of Materials.** (2:2:0) Prerequisites: Elec. Eng. 360, 442. Woodbury  
Electrical properties of crystalline solids.
- 513. Linear Systems.** (3:3:0) Prerequisite: graduate standing or consent of instructor. State-space and transform techniques in the analysis of linear systems.
- 521. Computer Arithmetic Techniques and Microprogramming.** (3:3:0) Prerequisite: Elec. Eng. 320.
- 523. Digital Computer Design.** (3:3:0) Prerequisite: Elec. Eng. 210. The operation and logical design of digital computers.
- 524. Switching Theory.** (3:3:0) Prerequisite: Elec. Eng. 523. Analysis and synthesis of combinatorial and sequential switching circuits; their use in computation.



- 525. Advanced Switching and Logic Theory.** (3:3:0) Prerequisite: Elec. Eng. 320.  
Fault diagnosis, multi-ports, advanced algorithms, computer-aided digital system design, and iterative networks.
- 526. Telecomputing.** (3:3:0) Prerequisites: Elec. Eng. 320, 442.  
Computer networks, input/output handling, digital data transmission techniques, synchronization, error coding, feedback communications, decision theory, likelihood, correlation, and orthogonal signals.
- 528. Analog Computer Design.** (3:3:0) Prerequisite: Elec. Eng. 304 or 442.  
Theory and operation of analog computer components; hybrid computation.
- 531. Power Systems Analysis I.** (3:3:0) Prerequisite: Elec. Eng. 302 or completion of or concurrent registration in Elec. Eng. 431.  
Polyphase circuits, transmission line constants, power system representation, generalized circuit constants, symmetrical components, and fault studies.
- 532. Power System Analysis II.** (3:3:0) Prerequisite: Elec. Eng. 531.  
Characteristics of electric power system components; fault study consideration; introduction to power system stability.
- 533. Power Machinery and Equipment.** (3:3:0) Prerequisite: Elec. Eng. 302 or 431.  
Transformers; synchronous, induction, and DC machines; other power system devices.
- 537. Advanced Control Machinery Laboratory.** (1:0:3) Prerequisite: Elec. Eng. 411.  
Experiments with electrical machinery, control systems, and power distribution systems.
- 541. Switching, Timing, and Pulse Circuits.** (4:3:3) Prerequisite: Elec. Eng. 442.  
Passive and active electronic circuits, with emphasis on nonlinear modes of operation.
- 542. Advanced Switching and Pulse Circuits.** (3:3:0) Prerequisite: Elec. Eng. 541.  
Switching, shaping, memory, and function generation in electronic systems.
- 550, 551. Physical Electronics.** (3:3:0 ea.) Prerequisites: Physics 221 and senior or graduate standing. Recommended: Elec. Eng. 450.  
Theory and applications of solid-state electronic devices, including Gunn and avalanche diodes, lasers, and magnetic and acoustical devices.
- 552R. Semiconductor Laboratory.** (1-2:0:3-6 ea.) Prerequisite: completion of or concurrent registration in Elec. Eng. 450 or 550.  
Experimental investigation of semiconductor materials, including basic measurements and construction of electronic devices.
- 560. Electromagnetic Engineering.** (3:3:0) Prerequisites: Elec. Eng. 360; concurrent registration in Elec. Eng. 567.  
Application of electromagnetic field theory to microwave components and systems.
- 561. Communication Circuits.** (3:3:0) Prerequisites: Elec. Eng. 360, 442; concurrent registration in Elec. Eng. 566.  
Circuits and RF techniques used in communication systems.
- 564. Radar Systems.** (3:3:0) Prerequisites: Elec. Eng. 360, 442.  
Major components constituting a radar, and development of system engineering concepts.
- 566. Communication Circuits Laboratory.** (2:0:6) Prerequisite: concurrent registration in Elec. Eng. 561.  
Building and testing the circuits studied in Elec. Eng. 561.
- 567. Microwave Laboratory.** (1:0:3) Prerequisite: Elec. Eng. 560.  
Building and testing microwave systems studied in Elec. Eng. 560.

- 593R. Special Topics in Electrical Engineering.** (3:3:0 ea.) Prerequisite: consent of instructor.  
Content varies from year to year. Recent developments in electrical engineering.
- 598R. Special Problems.** (1-2:Arr.:Arr. ea.) Prerequisite: consent of instructor.
- 621. Computer Graphics and Real-Time Programming.** (3:3:0) Prerequisite: Elec. Eng. 320.  
Graphic input/output systems for digital computers; on-line and real-time hybrid systems.
- 623. Advanced Digital Computers.** (3:3:0) Prerequisites: Elec. Eng. 523; Comput. Sci. 232 or equivalent.  
Advanced theory and operation of digital computers and their design and application to engineering, scientific, and control problems.
- 645. Microwave Devices.** (3:3:0) Prerequisite: Elec. Eng. 560.  
Theory and design of passive and active microwave components.
- 661. Advanced Electromagnetic Fields.** (3:3:0) Prerequisite: Elec. Eng. 560.  
Physical interpretation of electromagnetic fields. Mathematical methods of solving boundary value and other field problems.
- 663. Antenna Theory.** (3:3:0) Prerequisite: Elec. Eng. 360.  
An advanced viewpoint of radiation, terminal, and distributed properties of antenna structures.
- 664, 665. Communication Theory.** (3:3:0 ea.) Prerequisite: graduate standing or consent of instructor.  
Transmission through electric networks; periodic sampling; pulse modulation, analysis of information transmission systems; noise considerations.
- 697R. Master of Engineering Project.** (3:Arr.:Arr. ea.) Prerequisites: graduate standing and consent of major professor.  
One-semester project for Master of Engineering degree.
- 698R. Readings and Seminar.** (1:1:0 ea.) Prerequisite: graduate standing.
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.) Prerequisites: graduate standing and consent of major professor.
- 791R. Seminar for Doctoral Students.** (1:1:0 ea.)
- 794R. Selected Topics in Electrical Engineering.** (1-3:Arr.:Arr.)
- 797R. Research for Doctoral Students.** (Arr. ea.)
- 799. Dissertation for Doctoral Students.** (Arr.)

## Engineering: Mechanical Engineering Science

**Professors:** Andersen, Cannon, Free, Heaton (graduate coordinator, 223-D FELB), Polve, Simonsen (chairman, 223-B FELB), Ulrich, Warner, Wille.

**Associate Professor:** Paxson.

**Assistant Professor:** Chase.

**Programs:** Master of Science (M.S.), Master of Engineering (M.E.). (Students anticipating doctoral work in this area are referred to page 97 for details.)

**Entrance Examinations Required:** No special exams required of graduates of ECPD (Engineers' Council for Professional Development) accredited schools. Favorable consideration given to graduates of curriculums not accredited by ECPD who submit Graduate Record Examination scores in aptitude and advanced engineering tests. Also, for non-ECPD curriculum graduates, a

screening exam is required after arrival to determine weaknesses that must be strengthened.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Engineering

**Prerequisites:** Bachelor's degree in mechanical engineering or, with the consent of the department, an allied discipline.

**Fields:** Applied mechanics, machine design, manufacturing, nuclear engineering (with Physics), thermosciences.

**Minors Permissible:** Option I and Option II.

**Requirements:** Minimum of 30.5 semester hours including a project (3-hr. min.—698).

**Required Courses:** Mech. Eng. 510, 534, 540, 591R, and Math. 322, 323.

This program is designed to provide the breadth of experience encountered by a practicing professional engineer. To increase flexibility in scheduling, a special program (M-3 program) is available in which a student may work on the B.S. and M.E. degrees simultaneously during the last 3 years (6 semesters). The B.S. degree may be obtained simultaneously with, or prior to, the receipt of the M.E. degree. To enter the M-3 program, the student must file an application and course outline for both B.S. and M.E. programs at the beginning of his junior year. After acceptance, a student may take courses for graduate credit. Prior to taking the last 30 hours of course work the student must apply to graduate school.

### Master of Science

**Prerequisites:** Bachelor's degree in mechanical engineering or, with the consent of the department, an allied discipline.

**Fields:** Applied mechanics, machine design, manufacturing, nuclear engineering (with Physics), thermosciences.

**Minors Permissible:** Option I and Option II.

**Requirements:** Minimum of 30.5 semester hours including thesis (6-hr. min.—699R).

**Required Courses:** Mech. Eng. 591R and 6 hours of mathematics beyond the level of ordinary differential equations.

This is a research-type program designed for students who plan a research or development career in engineering.

### Courses

(See also related courses in other engineering and physical science offerings.)

☐ Civil Engineering Science 501. Advanced Mechanics of Materials.\* (3:3:0)

☐ Civil Engineering Science 502. Advanced Properties of Materials.\* (3:3:0)

**510. Fluid Mechanics II.** (3½:3:2) Prerequisites: Math. 321; Mech. Eng. 412. Compressible flow; shock effects; Fanno and Rayleigh lines; generalized one-dimensional flow.

**511. Intermediate Gas Dynamics.** (3:3:0) Prerequisite: Mech. Eng. 510. Potential theory and Euler's equations. Supersonic and subsonic multi-dimensional flow. Method of characteristics; small perturbation theory; Hodograph theory. Theoretical airfoil coefficients, etc.

- 512. Boundary Layer Theory.** (3:3:0) Prerequisite: Mech. Eng. 412.  
The stress tensor; Navier-Stokes equations; exact solutions for parallel flow; lubrication theory; Prandtl's equations; separation; Karman-Pohlhausen integral methods; applications.
- 515. Applied Aerodynamics and Flight Mechanics.** (3:3:0) Prerequisite: Mech. Eng. 322.  
An integrated picture of modern applied aerodynamics up to and including performance, stability, and control of aerospace vehicles.
- 521. Energy Resources and Conversion.\*** (3:3:0) Prerequisite: Mech. Eng. 322.  
Survey of energy resources and design of systems for conversion of energy using the principles of thermodynamics.
- 531. Principles of Automatic Control.\*** (3:3:0) Prerequisites: Mech. Eng. 412, 534; Math. 321.  
Transfer functions applied to mechanical, hydraulic, pneumatic, and electrical components and their combination. Block diagrams; Nyquist and Routh criteria; Bode's and root locus plots; integral and error rate compensation. Nonlinear systems.
- 533. Stress Analysis and Design of Mechanical Structures.\*** (3:3:0) Prerequisite: Civ. Eng. 303.  
Methods of predicting stress and deflection; optimization of components; applications to vehicle and aerospace structure design; curved beams and rings; semi-monocoque structures.
- 534. Dynamic System Analysis and Modeling.** (3½:3:2) Prerequisites: Math. 321; Civ. Eng. 304.  
Lumped models of mechanical, electrical-mechanical, fluid, and thermal systems; graphic models; physical system response; digital and analog simulation.
- 535. Advanced Vibration Analysis.\*** (3:3:0) Prerequisites: Math. 321; Civ. Eng. 304.  
Vibrations of systems with multiple degrees of freedom; vibrations of elastic bodies; random vibrations; simple nonlinear systems.
- 537. Advanced Kinematics.\*** (3:3:0) Prerequisite: Mech. Eng. 431.  
Geometry of constrained motion, with application to point paths; kinematic synthesis; types of mechanisms.
- 540. Heat Transfer.** (3½:3:2) Prerequisites: Mech. Eng. 321, 412; Math. 321.  
Fundamentals of heat transfer; basic laws; conduction; convection; change of phase; radiation.
- 541. Advanced Heat Transfer.** (3:3:0) Prerequisite: Mech. Eng. 540.  
Heat transfer analysis by numerical and analog methods. Emphasis on radiation and conduction. Use of digital and analog computers, passive analogs.
- 542. Design of Heat-Transfer Systems.\*** (3:3:0) Prerequisite: Mech. Eng. 540.  
Design of heat-transfer devices and heat-exchange systems associated with environmental temperature control, electronic cooling and aerospace vehicles.
- 552. Design and Materials Applications.** (3:3:0) Prerequisites: Mech. Eng. 351, 454.  
Applied and residual stresses; materials selection; static, impact, and fatigue strength; fatigue damage; surface treatments; elastic deflection and stability—all as applied to mechanical design.
- 554. Advanced Manufacturing Processes.** (3:3:0) Prerequisite: Mech. Eng. 351 or consent of instructor.  
Basic analysis of forming, machining, welding, and casting processes, with emphasis on microstructures. Selection of process parameters, with consideration of economics and material properties.



- 555. Mechanical Forming Methods.\*** (3:3:0) (m) Prerequisites: Consent of instructor.

A treatment of methods for calculating forces, velocities, and other physical parameters necessary to understand and design forming equipment such as extruders and rollers.

- 556. Advanced Physical Metallurgy.\*** (3:3:0) Prerequisites: Mfg. Tech. 335, Math. 223, or equivalent; or consent of instructor.

A continuation of Mfg. Tech. 335, including topics related to advanced material forming, molding, joining, and heat-treating processes.

- 572. Interdisciplinary Systems Design.** (3:1:6) Prerequisite: Mech. Eng. 471.

Design projects emphasizing group project attack on contemporary problems. Interdisciplinary faculty and student participants.

- 581. Internal Combustion Engines.\*** (3:2:3) Prerequisite: Mech. Eng. 322.

Basic principles of spark-ignition and compression; ignition engines; actual cycles; performance characteristics; carburetion and ignition principles; detonation and combustion. Laboratory work with three advanced engine testing cells.

- 584. Design of Fluid Machinery and Propulsion Engines.** (3:3:0) Prerequisite: Mech. Eng. 412.

Design and synthesis of radial and axial flow machines, pumps, and rocket, ramjet, and turbojet engines; applications of fluid flow and thermodynamic fundamentals.

- 591R. Seminar.** ( $\frac{1}{2}$ :1:0 ea.) Prerequisite: senior standing.

Student and faculty presentation of topics of special and current interest.

- 593. Mechanical Engineering Practicum.** (1-3:0:0) Prerequisite: minimum of 60 hours in mechanical engineering.

Technical elective credit given in recognition of at least two months of full-time, engineer-related, industrial experience. Planning document and formal report required.

- 595R. Special Topics in Mechanical Engineering.** (Arr. ea.) Prerequisite: consent of department chairman.

- 611. Theories of Fluid Turbulence.\*** (3:3:0) Prerequisite: Mech. Eng. 412; Math. 322, 323.

An introductory study of fluid turbulence both theoretical and experimental, including statistical and phenomenological models and using the Reynolds convention applied to the classical flow equations.

- 612. Principles of Ideal-Fluid Dynamics.\*** (3:3:0) Prerequisites: Mech. Eng. 412; Math 322, 323.

Analytical study of ideal-fluid hydrodynamics and aerodynamics. Topics include ideal-fluid assumptions, rotational and irrotational flow, acyclic and cyclic motion, circulation and lift.

- 637. Dynamics in Mechanical System Design.\*** (3:3:0) Prerequisite: Mech. Eng. 531 or 534.

Applied design analysis of complex systems needing evaluation of vibrations, transient response, and/or feedback control. Classical, modern, and computer techniques are included.

- 641R. Selected Topics in Heat-Transfer Theory.\*** (3:3:0 ea.) Prerequisite: Mech. Eng. 540.

Analysis of heat transfer in conduction, convection, or radiation.

- 651. Advanced Topics in Manufacturing.\*** (3:3:0) Prerequisite: Mech. Eng. 554 or consent of instructor.

Presentation and evaluation of the more advanced aspects of material behavior, forming, welding, casting, and machining.

- 661. Selected Topics in Solid Mechanics.\*** (3:Arr.:Arr.) Prerequisites: Civ. Eng. 303, Math 323.  
Three-dimensional equations of elasticity specialized to engineering problems including tension notation, wave propagation, computer solutions, and rate-dependent and inelastic materials.
- 695R. Special Problems for Master's Students.** (1-3:Arr.:Arr. ea.) Prerequisite: permission of department chairman.  
Selected problems in mechanical engineering.
- 697R. Research.\*** (Arr. ea.)
- 698. Project for Master of Engineering.** (3-5:0:Arr.) Prerequisite: fifth-year standing in mechanical engineering program.  
A design or research project in support of the Master of Engineering program. To be completed in one semester.
- 699R. Thesis for Master's Degree.** (6-9:Arr.:Arr. ea.)
- 791R. Seminar for Doctoral Students.** (1:1:0 ea.)
- 795. Selected Topics in Mechanical Engineering.** (1-3:Arr.:Arr.)
- 797R. Research for Doctoral Students.** (Arr. ea.)
- 799. Dissertation for Doctoral Students.** (Arr.)

\*Electives offered on demand.

## English

**Professors:** B. Clark, M. Clark, Cox, Craig (chairman, 246 JKBA), Ellsworth, Farnsworth (graduate coordinator, 242 JKBA), Gassman, Hart, Jacobs, King, Larson, Monson, R. Thomas, Thomson, West, Wood.

**Associate Professors:** Blanch, Brady, Cracroft, Evans, J. B. Harris, Lambert, McKellar, McKendrick, Tate, Thayer, J. Thomas, Waterstradt, Williams.

**Assistant Professors:** Arnold, B. Best, Esplin, Geary, Hunsaker, Luthy, Wight.

**Programs:** Master of Arts (M.A.), Doctor of Philosophy (Ph.D.).

**Entrance Examination Required:** Graduate Record Examination (verbal and advanced) **or** the senior comprehensive written examination of this department.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** Undergraduate major or its equivalent (including one course in literary criticism, one course in history of the language, and one course in modern grammar) and a reading knowledge of one foreign language, preferably French or German.

**Fields:** American literature, English literature, the English language.

**Minors Permissible:** Any of the three fields not selected for the major or a related area, such as modern languages, linguistics, psychology, or comparative literature.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** English 615; and 529, 624, or 626.

**Thesis:** A student may select any one of the following four options:

1. A thesis on a topic demanding research, criticism, or both.
2. Three long papers written in three different areas of English or American language or literature and on topics demanding research, criticism, or both.
3. Two long papers written in two different areas of English or American language or literature and on topics demanding research, criticism, or both; and a substantial creative work.
4. An extended creative project as described below. A candidate who wants to apply for this option should inform the Graduate Coordinator of the English Department when he begins his work for the degree. He must comply with the regulations of the English Department and the Graduate School in the same way as other candidates.

To prepare for option 3 the candidate must complete two hours of the following courses: English 315, 316, 318, 319; or, if he is a transfer student, their equivalent. To prepare for option 4 the candidate must complete at least two hours either as a graduate or undergraduate student in the English 300 writing series and at least two hours in English 518R. His average grade for the required course or courses must be at least B. He must also submit samples of his current creative writing to the Writing Committee of the English Department, who, within a two-week period, will evaluate them and will recommend acceptance or rejection of the candidate's application. When the candidate for either option has been assigned an advisory committee, the committee will approve his creative project—which may consist of such forms as essays, a drama or dramas, librettos, short stories, a novella, a novel, or poetry—to satisfy the thesis requirement.

This program is designed to prepare students for Ph.D. work in English and teaching English on the junior college level.

### Doctor of Philosophy

**Prerequisites:** A master's degree in English from an accredited graduate school.

If the earlier degrees have not included formal course work in the following areas, these courses must be completed in addition to the other Ph.D. requirements: (1) "History of the English Language" (English 421); (2) one of the following language courses: "Old English" (English 624), "Middle English" (English 626), or the "Structure of Modern English" (English 529); (3) "Bibliography and Methods of Research" (English 615); (4) "Literary Criticism" (English 351 or English 650). A reading knowledge of French and German (other languages may be substituted only with the written permission of the Graduate Coordinator of the English Department upon recommendation of the student's faculty sponsor).

**Fields:** American literature, English literature.

**Minors Permissible:** The field listed above not selected for the major, or a related area, such as comparative literature, history, language, linguistics, approved by the advisory committee.

**Requirements:** See competency statement of the Graduate School.

**Required Courses:** As arranged.

### Courses

**500R. Eminent American Writers.** (1-3:1-3:0 ea.)

Different writers are treated each semester in this series.

**510R. Eminent English Writers.** (1-3:1-3:0 ea.)

Different writers are treated each semester in this series.

- 518R. Advanced Creative Writing.** (2:2:0 ea.) Prerequisite: English 318, 319, or consent of instructor. Larson, Thayer  
A seminar in the writing of fiction, poetry, drama, and the essay; individual consideration of manuscript; professional orientation. May be repeated for credit with the consent of instructor.
- 520R. Studies in Theme and Form.** (2-3:2-3:0 ea.)  
An intensive study of limited literary topics (the theory of myth, Gothic fiction, Utopian literature, etc.). Varies according to instructor.
- 529. Structure of Modern English.** (3:3:0) Prerequisites: English 321; Ling. 325; or consent of instructor. Luthy, Cox  
Application of the methods of linguistic science to the description of the phonology, morphology, and syntax of modern English.
- 582. Extended Readings in Shakespeare.** (3:3:0) Farnsworth, Hart  
Extensive study of the body of Shakespeare's works.
- 615. Bibliography and Methods of Research.** (2:2:0) Gassman, J. Thomas  
The use of library resources as tools for literary study and an introduction to various areas in which literary research may be pursued. To be taken in the first regular semester of graduate study.
- 621. Problems in the English Language.** (3:3:0) Prerequisite: English 421. Cox, McKendrick  
The study of a particular period in the English language or a particular aspect of the language, such as the study of morphology or syntax.
- 624. Old English.** (3:3:0) McKendrick  
A study of Old English grammar and vocabulary in order to understand traditional syntactical patterns and to read various types of Old English prose and poetry.
- 625. Beowulf.** (2:2:0) Prerequisite: English 624. McKendrick  
A close reading of the poem in the original, with emphasis upon literary and cultural values.
- 626. Middle English.** (3:3:0) McKendrick  
A detailed study of the principal Middle English dialects as illustrated in the literature of the period.
- 631. The English Novel.** (3:3:0) Prerequisites: English 332, 333, or consent of instructor. Brady, B. Clark, Gassman  
An intensive analysis of literary values and techniques in selected novels. Not a survey course.
- 635. The American Novel.** (3:3:0) Arnold, M. Clark, Jacobs  
Various approaches to the novel with emphasis on the formal. Focus may vary according to the instructor and the needs of students.
- 641. The English Drama.** (3:3:0) Craig  
A short intensive survey of English drama from its beginning, followed by independent research.
- 650. Literary Criticism.** (3:3:0) Prerequisite: English 351 or equivalent. M. Clark, Hart, Larson  
An examination of modern critical theory and practice and application by students to specific literary works.
- 651R. Studies in Poetry.** (3:3:0) Hart, Larson
- 652R. Studies in Prose Nonfiction.** (3:3:0) Farnsworth, Hart, J. Thomas, Thomson
- 661. Colonialism and Puritanism in American Literature.** (3:3:0) Prerequisite: English 361 or consent of instructor. Jacobs, Thomson, Williams  
Intensive readings in major writers of the emerging American literary and cultural traditions before 1800.



- 662. Romanticism in American Literature.** (3:3:0) Prerequisite: English 361 or consent of instructor. Ellsworth, Jacobs, Thomson  
The rise and fruition of the romantic movement in American literature from Freneau to Lowell.
- 663A,B,C,D,E. Studies in Regional American Literature.** (3:3:0) Prerequisite: a general background in American literature. Cracroft, Jacobs, Lambert, Thomson  
Focus on a different region each time offered.
- 664. Realism and Naturalism in American Literature.** (3:3:0) Prerequisite: English 362 or consent of instructor. M. Clark, Cracroft, Jacobs, Lambert  
Dominant cultural and aesthetic trends since the Civil War.
- 666. American Literature, 1900-1950.** (3:3:0) Prerequisite: Engl. 363 or other course in modern American literature. M. Clark, Evans, Larson
- 667. Folklore.** (2:2:0) Prerequisite: English 391 or consent of instructor.  
Directed study in folklore and folkways, with emphasis on the Mormon heritage and tradition. Collecting, analyzing, and editing.
- 669. Teaching English in the Secondary Schools.** (2:2:0) Prerequisite: English 377 or consent of instructor. West  
Intensive consideration of literature, writing, grammar, and reading materials appropriate to English courses, and the effective use of these materials.
- 671. The Medieval Period in English Literature.** (2:2:0) McKendrick  
A close reading in the original of a principal work, such as *Troilus and Criseyde*, *Piers Plowman*, or *Sir Gawain and the Green Knight*, with emphasis upon its relation to the other literature, the culture, and the history of the period.
- 672. The Renaissance in English Literature.** (3:3:0) Prerequisite: English 372 or consent of instructor. Larson, J. Thomas, Wood  
Research in individual authors, styles, influences, and trends. Emphasis will vary according to instructor.
- 673. Classicism in English Literature.** (3:3:0) Prerequisite: English 373 or consent of instructor. Gassman, Hart  
A study in depth of selected writers from the period 1660-1780.
- 674. Romanticism in English Literature.** (3:3:0) Prerequisite: English 374 or consent of instructor. B. Clark, J. B. Harris  
An intensive review of the major figures and trends in the romantic period (1780-1832), along with individual research.
- 675. The Victorian Age in English Literature.** (3:3:0) Prerequisite: English 375 or consent of instructor. Brady, B. Clark, Farnsworth  
A detailed analysis of literary genres, values, and techniques in representative works of the period. Not a survey course.
- 676. British Literature, 1900-1950.** (3:3:0) Prerequisite: course in modern British literature. Hart, Larson
- 680. Contemporary Literature.** (3:3:0) Prerequisite: at least one course in twentieth-century literature, or consent of instructor. M. Clark, Hart, Larson  
Study of specific trends in literature and criticism; students may select areas of interest.
- 682. Problems in Shakespearean Scholarship and Criticism.** (3:3:0) Prerequisites: English 382, 582, or consent of instructor. Farnsworth, Hart
- 695. Individual Readings in English.** (1-2:Arr.:0)  
Intended for investigation beyond course work offered, not for filling minimum required hours.

**699. Thesis for Master's Degree.\* (6-9:Arr.:Arr.)**

See options described with master's program in English above.

**728R. Studies in Rhetoric and Style. (3:3:0 ea.)****729. Advanced Study in English Grammars. (3:3:0) Prerequisite: English 529.**

Cox

**755R. Studies in the Tragic Mode. (3:3:0 ea.)**

Craig, Hart

**756R. Studies in the Comic Mode. (3:3:0 ea.)**

Evans, Farnsworth,  
Gassman, Thomson

**799. Dissertation for the Ph.D. Degree.\* (Arr.) Prerequisite: approval of the candidate's chairman.**

\*See section of this catalog entitled "Continuous Registration."

## Food Science and Nutrition

**Professor:** Bennion (graduate coordinator, 2218-E SFLC).

**Associate Professor:** Hill.

**Assistant Professors:** Johnson (chairman, 2218-B SFLC), Walker.

**Program:** Master of Science (M.S.).

**Entrance Examinations Required:** None.

**Application Consideration Dates:** April 1 and October 15.

**Entry Times:** Fall or Winter semesters.

### Master of Science

**Prerequisites:** Undergraduate major in food science and nutrition or a closely related field, with basic courses in the physical and biological sciences.

**Fields:** Food science and nutrition.

**Minors Permissible:** Biochemistry recommended; other minors available in consultation with major professor; Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.); a statistics course.

**Required Courses:**

**Nutrition:** FSN 635, 636, 637, 691, 695, and 450 or equivalent; Chem. 581 and 584.

**Food Science:** FSN 435 and 450 or equivalent; FSN 660, 662, 665, 690, and 695; Chem. 581 and 584.

**Food Science and Nutrition:** FSN 435, 450, 662, 695, 690, and 691; FSN 635, 636, or 637; Chem. 581 and 584.

These programs are designed to prepare students for Ph.D. work in nutrition or food science, for college teaching, and/or for positions in industry.

### Courses

**635. Protein and Amino Acid Nutrition. (3:3:0) Prerequisite: FSN 435 or equivalent.**

Offered 1974 and alternate years.

**636. Energy Balance and Vitamin Nutrition. (3:3:0) Prerequisite: FSN 435 or equivalent.**

Offered 1974 and alternate years.

- 637. Mineral Nutrition.** (3:3:0) Prerequisite: FSN 435 or equivalent.  
Offered 1974 and alternate years.
- 660. New Food Product Development.** (4:2:6) Prerequisites: FSN 450, 461 or equivalent.  
Research and development of new food products, with emphasis on developing nutritious foods for emerging countries. Offered 1973 and alternate years.
- 662. Flavor and Sensory Analysis of Food.** (2:1:3) Prerequisite: FSN 450 or equivalent.  
A study of flavor chemistry and methodology in the sensory evaluation of food. Offered 1974 and alternate years.
- 665. Environmental Contaminants in Food.** (2:1:3) Prerequisite: Chem. 384.  
Detection and analysis of food pollutants, such as pesticides, hormones, industrial wastes, by-products of processing, and natural toxins. Offered 1974 and alternate years.
- 690. Seminar in Food Science.** (1-2:1-2:0)
- 691. Seminar in Nutrition.** (1-2:1-2:0)
- 695. Methods of Research in Food Science and Nutrition.** (3:0:9)  
Offered 1973 and alternate years.
- 697R. Research.** (1-3:Arr.:Arr. ea.)
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Geography

**Professor:** Layton (chairman, 167-D HGB).

**Associate Professors:** Grey, Stevens.

**Assistant Professors:** Hudman, Jackson.

**Program:** Master of Science (M.S.).

**Entrance Examination Required:** Graduate Record Examination (general and advanced section on geography).

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** Undergraduate minor in geography or its equivalent. Students going into area studies should have a strong language background. Those emphasizing planning, cartography, or geography in business or industry should have background in mathematics or statistics.

**Fields:** Cartography, general geography, urban and regional planning.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** Geog. 601, 620, 630, 698R, 699.

This program is designed to provide a general background at the graduate level for either a terminal degree or preparation for more advanced work, and to allow specialization according to the student's specific interest in a particular area within the discipline.

### Courses

- 501. Geography for Teachers.** (3:3:0) Home Study also.  
A systematic approach to the fundamentals of geography, emphasizing source materials, teaching methods, tools, and techniques.
- 502R. Seminar in Regional Geography.** (2:2:0 ea.)
- 504. Geographic Field Techniques.** (2:1:2)  
For majors only.
- 512. Cartography.** (3:1:4) Prerequisite: Geog. 312.
- 520. Quantitative Methods in Geography.** (3:3:0) Prerequisite: Math. 105 or equivalent.  
Application of quantitative methods in geography.
- 522. Urban Geography.** (3:3:0)  
Distribution of urban areas, their development, internal land use patterns, and functions in the world's economy.
- 533. Industrial Geography.** (3:3:0) Prerequisite: Geog. 231.  
A systematic analysis of major industries in the United States with emphasis on planning and industrial location theory.
- 580. Geography of Underdeveloped Areas.** (2:2:0) Prerequisite: consent of instructor.  
Physical, economic, and human geography as it affects the world's underdeveloped areas, with emphasis on future development possibilities.
- 598. Seminar in Techniques of Research and Presentation.** (2:2:0)  
A proseminar in the scholarly use of geographical sources, leading to a substantial paper in oral and written form.
- 601. Physical Geography.** (2:1:2)
- 620. Cultural Geography.** (2:1:2)
- 630. History and Philosophy of Geography.** (2:2:0)  
The development of geographical thought. Major concepts concerning the nature, scope, and methodology of the discipline.
- 690R. Readings.** (1:0:2 ea.)
- 695. Special Problems.** (1-2:1-2:0)
- 698R. Seminar in Systematic Geography.** (2:2:0 ea.)  
A detailed investigation of selected aspects of systematic geography.
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

### Geology

**Professors:** Best (graduate coordinator, 146B ESC), Bissell, Brimhall, Bullock, Bushman, Hamblin, Hansen, Hintze, Petersen, Phillips (chairman, 275 ESC), Rigby.

**Associate Professors:** Baer, Miller.

**Programs:** Master of Science (M.S.), Master of Arts in earth sciences (M.A.), Doctor of Philosophy (Ph.D.).

**Application Requirements:** Scores on Graduate Record Examination and advanced geology.

**Entrance Requirements:** Departmental exploratory examination given during first week of enrollment.



**Application Consideration Dates:** Same as Graduate School deadlines. Application for teaching assistantships and other financial aid for the following school year must be received by the Geology Department before March 1.

**Entry Times:** Fall or Winter semesters only.

**Student Load Limits:** The normal load for a student who is not working is 12 hours per semester or 6 hours per term. The maximum allowable load for student teaching assistants working 20 hours a week is 10 hours per semester. For those working 10 hours a week, the maximum credit load is 12 hours.

#### Master of Science

**Prerequisite:** Undergraduate degree in physical or biological sciences. Arrangements to make up any undergraduate deficiencies will be made in consultation with the Geology Department graduate coordinator.

**Fields:** Economic geology; mineralogy, geochemistry, and petrology; paleontology; stratigraphy and sedimentation; structural and field geology.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 24 semester hours plus a published thesis (6-hr. min.—699).

**Required Course:** Geol. 512, "Geology of North America."

#### Master of Arts

**Prerequisite:** Undergraduate degree in physical or biological sciences.

**Field:** Earth science teaching emphasis.

**Minors Permissible:** Any combination of physical or biological science courses listed below.

**Requirements:** (1) a minimum of 12 hours in geology and 12 hours from the associated fields of astronomy, botany, chemistry, geography, mathematics, physics, zoology; (2) a comprehensive written examination of graduate course work prior to the thesis defense; (3) a thesis representing research work in the field of earth science under faculty adviser's supervision for a total of 6 hours; (4) a final oral examination on the research thesis.

**Required Courses:** Selections are to be made from the following courses:

|                     |  |
|---------------------|--|
| Geology             | 507, 510, 512, 540, 577, 682, plus upper-division courses not previously taken |
| Bio. Agr. Education | 321, 325   |
| Botany              | 321, 331, 440, 455, 460, 510, 525, 539, 550, 557, 620, 655                     |
| Chemistry           | 351, 352, 353, 514, 598  |
| Geography           | 405, 601   |
| Mathematics         | 300, 301, 302, 371, 501, 502, 629  |
| Physics             | 300, 527, 528, 536, 537  |
| Zoology             | 457, 543, 545, 546, 547, 591R, 601   |

#### Doctor of Philosophy

**Prerequisites:** Master's degree in geology or equivalent.

**Fields:** Economic geology; mineralogy, geochemistry, and petrology; paleontology; stratigraphy and sedimentation; structural and field geology.

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 60 semester hours plus a published dissertation (18-hr. min.—799).

**Required Course:** Geol. 512, "Geology of North America."

### Courses

- 411. Geomorphology and Air Photo Interpretation.** (3:2:2) Prerequisite: Geol. 112. Hamblin  
Landforms and their geologic and environmental significance. Recognition and interpretation of landforms from air photos.
- 451. Optical Mineralogy.** (3:2:2) Prerequisite: Geol. 351. Phillips  
Fundamentals of optical crystallography and mineral identification techniques using the petrographic microscope.
- 460. Economic Geology.** (3:2:2) Prerequisite: Geol. 352. Bullock  
Principles, genesis, and localization of ore deposits, including laboratory study of ore minerals.
- 470. Stratigraphy and Sedimentation.** (3:2:2) Prerequisite: Geol. 352. Bushman  
Sediments, sedimentary rocks, and principles of stratigraphy.
- 480. Introduction to Paleontology.** (3:2:2) Prerequisite: Geol. 112. Petersen  
Distribution, morphology, paleoecology, evolution, and stratigraphic significance of organisms in the geologic record.
- 501. Rocks and Minerals.** (2:2:0) Bullock  
Origin, classification, and identification of earth's common raw materials. For nonmajors.
- 502. Geology for Teachers.** (2:2:0) Prerequisites: Geol. 101 and 102, or 103, or 111. Bushman  
Designed to aid junior and senior high school earth science teachers. Materials and methods useful for the classroom.
- 507. History of Geology.** (2:2:0) Bushman  
Historical development of concepts and philosophy distinctive to geology. Offered 1974-75 and alternate years.
- 510. Conducted Field Trips.** (1-3:Arr.:Arr.) Prerequisite: Geol. 101, 103, or 111.  
Visits to and explanations of a variety of geologic features spectacularly displayed in the Intermountain West. Credit varies with number and length of trips in which student participates, but, in general, 30 hours will be spent in the field for each credit hour. Maximum credit allowable is 3 hours.
- 512. Geology of North America.** (4:3:2) Rigby  
A region-by-region study of the areal geology, physiography, and geologic development of Canada, the United States, and Mexico.
- ☐ **Chemistry 514. Inorganic Chemistry.** (3:3:0)
- 515. Photogeology.** (3:1:4) Hintze  
Techniques useful to practicing geologists; use of parallax bar and various instruments applicable to contact print photos.
- 520. Petroleum Geology.** (4:4:0) Baer  
Offered 1973-74 and alternate years.
- 535. Groundwater.** (4:4:0) Hintze  
Offered 1974-75 and alternate years.
- ☐ **Botany 539. Paleobotany.** (3:2:3) Tidwell
- 540. Geophysics and Constitution of the Earth.** (2:2:0) Best  
Survey of physics of earth's interior and its bearing on plate tectonics. Offered 1973-74 and alternate years.

- 544. Geochemistry Laboratory.** (2:1:2) Prerequisite: consent of instructor. Brimhall  
Use of spectroscopic instruments for acquisition of chemical and isotopic data on geological materials.
- 545. Geochemistry.** (3:3:0) Prerequisite: consent of instructor. Brimhall  
Geological materials and processes from a chemical point of view. Offered 1974-75 and alternate years.
- 551. Advanced Mineralogy.** (3:2:2) Prerequisites: Geol. 351 and 451; Physics 202 or 213. Phillips  
Crystallography, structure, and crystal chemistry of major mineral groups studied by X-ray diffraction and other methods.
- 552. Igneous and Metamorphic Petrography.** (3:1:4) Prerequisites: Geol. 352 and 451.  
Bearing of textures and mineral associations on history of rock bodies.
- 561. Ore Deposits.** (4:4:0) Prerequisite: Geol. 460. Bullock  
Metallic ore deposits—their origin, classification, and distribution, emphasizing major ore deposits of the United States.
- 562. Industrial Minerals and Rocks.** (3:3:0) Prerequisite: Geol. 460. Bullock  
Occurrence, distribution, and use of nonmetallic earth materials. Offered 1974-75 and alternate years.
- 563. Mining Geology.** (3:3:0) Prerequisite: Geol. 460. Bullock  
Ore search and appraisal; assembling geological data; mining techniques; and ore treatment. Offered 1973-74 and alternate years.
- 574. Principles of Stratigraphy.** (3:3:0) Prerequisite: Geol. 470. Bissell  
Offered 1974-75 and alternate years.
- 575. Precambrian and Paleozoic Stratigraphy.** (3:3:0) Hintze  
Synthesis of regional stratigraphic relations in North America. Offered 1974-75 and alternate years.
- 576. Mesozoic and Cenozoic Stratigraphy.** (3:3:0)  
North American Mesozoic and Cenozoic rocks and key fossils. Offered 1974-75 and alternate years.
- 577. Oceanography.** (3:3:0) Prerequisite: Geol. 470. Hamblin  
Oceanic processes, shoreline topography, sedimentary patterns, and sea floor features. Offered 1973-74 and alternate years.
- 580. Invertebrate Paleontology (Protozoans through Brachiopods).** (4:3:2) Rigby  
Morphology, paleoecology, evolution, and stratigraphic significance of invertebrates. Offered 1973-74 and alternate years.
- 581. Invertebrate Paleontology (Mollusks through Hemichordates).** (4:3:2) Petersen  
Continuation of Geol. 580. Offered 1973-74 and alternate years.
- ☐ **Physics 581. Introduction to X-Ray Diffraction Analysis.** (3:2:3)
- ☐ **Physics 582. X-Ray Crystallography.** (3:2:3)
- 582. Biostratigraphy.** (3:2:2) Prerequisite: Geol. 480 or 581. Petersen  
Fossils in their stratigraphic setting and principles of paleontologic chronology. Offered 1973-74 and alternate years.
- 583. Palynology.** (3:2:3) Prerequisites: Bot. 105; Geol. 480. Bushman  
Modern and fossil palynomorphs—their preparation, identification, and application to stratigraphic and paleoecologic problems. Offered 1974-75 and alternate years.
- 591R. Seminar.** (1:1:0 ea.)

- 610. Structural Geology.** (3:3:0) Baer  
Earth structures and their origin, emphasizing sequence of tectonic events and their global significance. Offered 1973-74 and alternate years.
- 655. Igneous Petrology.** (4:3:2) Prerequisite: Geol. 552.  
Origin and crystallization behavior of magmas, with emphasis on crystal-liquid relations in simple experimental systems. Offered on demand.
- 656. Metamorphic Petrology.** (3:2:3) Prerequisite: Geol. 552. Best  
Subsolidus mineral equilibria; thermodynamic concepts; geologic variables in metamorphic systems; graphical analysis of mineral assemblages. Offered on demand.
- 670. Sedimentation and Sedimentary Tectonics.** (3:2:2) Bissell  
Offered 1974-75 and alternate years.
- 671. Sedimentary Petrology—Carbonate Rocks.** (3:3:2) Bissell  
Offered 1973-74 and alternate years.
- 672. Sedimentary Petrology—Clastic Rocks.** (3:2:2) Prerequisite: Geol. 470. Hamblin  
Offered 1973-74 and alternate years.
- ☐ **Botany 678. Organic Evolution.** (3:3:0) Stutz
- 678. Subsurface Methods.** (3:2:2) Prerequisite: Geol. 551. Baer  
Use of electric logs in subsurface mapping and evaluation. Offered on demand.
- 680. Micropaleontology.** (3:2:2) Prerequisite: Geol. 480 or 581. Rigby  
Geologically important microfossils, including conodonts, ostracodes, and foraminifera. Offered 1974-75 and alternate years.
- 682. Vertebrate Paleontology.** (4:3:2) Prerequisite: Geol. 480 or 581, or consent of instructor.  
Morphology, ecology, phylogeny.
- 685. Paleocology.** (4:3:2) Prerequisite: Geol. 480 or 581. Rigby  
Ancient environments and ecology of major taxonomic groups. Offered 1973-74 and alternate years.
- 696. Reading and Conference in Geology.** (1-4:1-4:0)
- 697R. Directed Field Studies.** (1-6:Arr.:Arr. ea.)
- 698. Research.** (1-4:1-4:0)
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)
- 797R. Directed Field Studies.** (1-6:Arr.:Arr. ea.)
- 799. Dissertation for Doctor of Philosophy Degree.** (Arr.)

## Health Sciences

**Professors:** Shaw (college coordinator, 221-F RB), Watters (chairman, 213 RB).

**Associate Professors:** Hafen, Heiner, Thygerson, Burgener.

**Assistant Professors:** Hurley, Rhodes, Rollins, Salazar.

**Programs:** Master of Science (M.S.), Master of Health Education (M.H.Ed.).

**Entrance Examination Required:** None.

**Application Consideration Dates:** Same as Graduate School deadlines.



**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** An undergraduate major or minor (minimum, 20 hours or equivalent) in health sciences.

**Fields:** Community health, health education (with emphasis in school health), safety education.

**Minors Permissible:** Option I or II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.).

**Required Courses:** Health 692 and Stat. 552.

### Master of Health Education

**Prerequisites:** An undergraduate major or minor (minimum, 20 hours or equivalent) in health sciences.

**Fields:** Community health, health education (with emphasis in school health), safety education.

**Minors Permissible:** Option I or II.

**Requirements:** Minimum of 32 semester hours; a written comprehensive examination.

**Required Courses:** Health 551, 692, and Stat. 552.

### Courses

- ☐ **Microbiology 311. Sanitation and Public Health.** (2:2:0)
- ☐ **Psychology 321. Psychology of Adolescence.** (3:3:0)
- ☐ **Microbiology 331. Microbiology.** (5:3:6)
- ☐ **Physical Education 344. Physiology of Activity.** (3:3:0)
- ☐ **Sociology 357. (Sociol.-Psych.) Group Relations and Leadership.** (3:3:0)
- ☐ **Sociology 360. Introduction to the Field of Social Work.** (3:3:0)
- ☐ **Botany 376. General Genetics.** (3:3:0) Prerequisites: introductory course in college biology and one-year course in college chemistry.
- ☐ **Zoology 376. General Genetics.** (3:3:0)
- ☐ **Sociology 389. Social Aspects of Mental Health.** (3:3:0)
- ☐ **Zoology 417. General Parasitology.** (4:3:3)
- ☐ **Psychology 440. Abnormal Psychology.** (3:3:2)
- ☐ **Zoology 465. Mammalian Physiology.** (4:3:3)
- ☐ **Microbiology 501. Pathogenic Microbiology.** (5:3:6) Prerequisite: Micro. 331 or consent of instructor.
- 501R. Health Education Workshop.** (1-3:Arr.:Arr. ea.) Watters  
A presentation of selected health education problems, followed by discussions. Conducted on a workshop basis.
- 502R. Driver and Safety Education Workshop.** (1-3:Arr.:Arr. ea.) Prerequisite: certified driver education instructor or consent of department chairman.  
Presentation of current safety education problems, research, and methods of instruction.

- 503R. Health Problems Workshop.** (1-3-Arr.:Arr. ea.)  
Current problems in school and community health.
- 530. First-Aid Instructorship.** (2:2:1) Rollins  
Qualifies students to become instructors for standard and advanced Red Cross courses in first aid.
- ☐ **Microbiology 531. Virology.** (4:2:6) Prerequisite: Micro. 501 or 511.
- ☐ **Zoology 535. Medical Entomology.** (2:1:2)
- ☐ **Education 550. Introduction to Guidance Services.** (2:2:0)
- 551. Fieldwork in Community Health.** (Arr.:Arr.:Arr.) Recommended: Health 451. Burgener  
Designed to broaden understanding of community health agencies, their roles, programs, and relationships.
- ☐ **Statistics 552. Statistical Methods in Education I.** (3:3:0)
- 552. School Health, Organization, and Services.** (2:2:0) Shaw  
Considers desirable school health services and functions and relationships to public education and education law. Coordinates school health services with community programs.
- 561. Health of the Body Systems.** (3:3:0) Rhodes  
Advanced course in personal health, dealing with the major factors in health and disease as they involve the several body systems.
- ☐ **Geography 580. Geography of Underdeveloped Areas.** (2:2:0)
- ☐ **Psychology 585. Advanced Physiological Psychology.** (3:3:0)
- 625. Problems and Research Review in Safety Education.** (2:2:0) Prerequisite: Health 325. Thygerson  
Analysis of accident cause and prevention. Problems of accident behavior in school, home, traffic, and public. Examination of theories and statistics. Offered Summer 1975.
- ☐ **Physical Education 631. Problems in Athletic Conditioning.** (2:2:0)
- ☐ **Education 646. Counseling Theory and Practice.** (3:3:0)
- 650. Preservation of Human Health.** (3:3:0) Prerequisite: Health 451 or equivalent. Hafen  
An epidemiological approach to the cause, nature, extent, and trends in the deterioration of human health. Offered Fall 1974.
- 651. Community Organization for Health.** (3:3:0) Hurky  
Nature of voluntary health organizations, current research in community school organization, and relationship of school health programs to community. Offered Spring 1975.
- 660. Body Responses to Health and Disease.** (2:2:0) Prerequisite: Health 561 or equivalent. Rhodes  
The physiology and biological chemistry of stimulants and depressants.
- ☐ **Physical Education 662. Administration and Public Relations.** (3:3:0)
- ☐ **Zoology 662. Advanced Physiology I.** (2:1:2)
- 670. Environmental Health.** (2:2:0) Burgener  
Emphasis on educational practices that relate to improving the environmental approach.
- 671. Graduate Practicum.** (1:1:0) Watters  
Analysis of the role and functions of the college health teacher. Supervised experience in teaching and research.

- 672. Social Hygiene.** (2:2:0) Heiner  
To prepare a prospective teacher to instruct in family life education as it relates to health. Emphasis on the area of sexual maturation, family health problems, parenthood, and other social hygiene factors.
- 692. Research Methods in Health Sciences.** (3:3:0) Shaw
- 694. Seminar in Readings.** (2:2:0) Watters
- 696R. Independent Studies.** (1-3:Arr.:Arr. ea.) Watters
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## History

**Professors:** Addy, Alexander (graduate coordinator, 241 MSRB), Allen, Arrington, Campbell, Hafen (emeritus), Hyer, Jensen, Swensen (emeritus), Warner (chairman, 250 MSRB).

**Associate Professors:** Britsch, Cardon, Flammer, Hill, Marlow, Tobler.

**Assistant Professors:** Chandler, Fox, Holmes, Montgomery, Thorp, Wood.

**Programs:** Master of Arts (M.A.), Master of Arts for Teachers of History (M.A.), Doctor of Philosophy (Ph.D.).

**Entrance Requirements:** A grade-point average of 3.0 over the last 60 hours and satisfactory recommendations are required. In addition, those entering the M.A. for Teachers of History must be currently under a teaching contract.

**Application Consideration Dates:** Applications will be accepted until and considered immediately after the following dates: May 15 for Fall Semester, October 1 for Winter Semester, and February 1 for Spring and Summer terms.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** An undergraduate degree in history or equivalent.

**Fields:** Asia (with Asian Studies), American history, modern European history, Latin America (with Latin American Studies), history teacher emphasis.

**Options Permissible.** Option I and Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Course:** One seminar in thesis field.

### Master of Arts for Teachers of History

**Prerequisites:** An undergraduate degree in history or equivalent and a current teaching contract.

**Requirements:** Minimum of 36 hours of credit approved as follows: Graduate Education, 9 hours; History, 21 hours; Professional Education Project (PEP), 6 hours. Consult committee for specific requirements in each area.

**Required Courses:** Education 536, 636, 514R, History 500R.

### Doctor of Philosophy

**Prerequisite:** A master's degree in history or the equivalent.

**Fields:** American history, modern European history.

**Minors Permissible:** Any approved minor.

**Requirements:** One year of study (at least 18 credit hours including a Ph.D. seminar) must be taken in residence. Consult the department for details of area requirements.

**Progress Review:** To evaluate the suitability of the continuation of his program, each Ph.D. student will take an oral examination after the completion of the first academic year of study. Ordinarily, the examination will be given between the completion of 12 to 18 hours of course work, but in every case the examination must be successfully completed before registration for the third semester of graduate work. The examination will be given by a committee of three faculty members selected by the Department Chairman.

**Required Courses:** At least one doctoral seminar.

### Courses

**500R. Special Studies in History. (1-3:1-3:0)**

Study of special topics, directed by visiting or resident faculty. Check with department secretary for current topic and instructor.

**609. Greek and Roman Thought. (3:3:0) Prerequisites: Hist. 304 or 307.**

A study of Greek and Roman intellectual, philosophical, and scientific achievements and their relation to Greek and Roman institutions.

**613. Medieval Problems and Thought. (3:3:0) Prerequisites: Hist. 310 or 311.**

Study of problems and interpretations in the history of the Middle Ages, from the fall of Rome to the Renaissance.

**618. Renaissance Problems and Thought. (3:3:0) Prerequisite: Hist. 312 or consent of instructor.**

Jensen

Source readings, analysis, and interpretation of selected historical problems for the Renaissance.

**619. Reformation Problems and Thought. (3:3:0) Prerequisite: History 313.**

Jensen

Source readings and discussions of the great men and ideas of the sixteenth century.

**621. Problems in Modern Europe. (3:3:0) Prerequisite: Some college-level study of modern Europe.**

Cardon

Reading, analysis, and interpretation of selected historical problems of the nineteenth and twentieth centuries.

**625. Problems in European Diplomacy since 1815. (3:3:0) Prerequisite: Hist. 425 or consent of instructor.**

Cardon

Readings on significant problems and issues in modern diplomatic history, accompanied by group analysis and interpretation.

**628. European Thought and Culture of the Enlightenment. (3:3:0) Prerequisite: Hist. 320.**

Jensen

Intellectual and cultural movements of the seventeenth and eighteenth centuries, with emphasis on the rise of scientific thought and Rationalism.

**629. European Thought and Culture since 1800. (3:3:0) Prerequisite: Hist. 429.**

Tobler

A study of the most influential intellectual ideas of the nineteenth and twentieth centuries, their forms of expression, and their impact on the contemporary world.

**631. Problems in Russian History. (3:3:0) Prerequisites: Hist. 330 and 331 or consent of instructor.**

Holmes

Detailed examination of the Russian revolutionary movement and the development of Communism.



- 635. Problems in Tudor and Stuart History.** (3:3:0) Thorp  
Examination of major sources and historical problems of sixteenth- and seventeenth-century England.
- 640. The Far East.** (3:3:0) Prerequisite: some previous study of Asia. Hyer  
Analysis and interpretation of selected problems and themes of Asian history, based on broadly selected readings.
- 648. Asian Thought and Culture.** (2:2:0) Prerequisites: Hist. 340 and 341.  
Reading and analysis of important institutions and aspects of Asian development.
- 650. Latin America.** (2:2:0) Prerequisite: Hist. 351 and 352. Addy  
An advanced study of the generalized historical development of Latin America—colonial and national periods considered.
- 660. Problems in Western History.** (3:3:0) Prerequisites: Hist. 462 and 463. Alexander, Allen, Warner  
An analysis of the major interpretations and themes in the history of the American West.
- 665. Problems in Mormon History.** (3:3:0) Prerequisites: Rel. 341 and 342, or consent of instructor.  
In-depth study of Mormon historiography, sources, and historical literature, and experience in working from primary sources in Church archives and other depositories.
- 666. Problems in Utah History.** (2:2:0) Prerequisite: Hist. 466. Campbell, Wood  
Reading in depth in the documents and discussion of interpretations of important events in Utah history.
- 670. Problems in Colonial America.** (3:3:0) Prerequisite: Hist. 370. Backman
- 672. Problems in the Founding of the American Republic.** (3:3:0) Prerequisite: Hist. 372.  
Reading in depth and discussion of major problems in American history between 1763 and 1800.
- 675. Problems in the Early American Republic (1800-1848),** (3:3:0) Prerequisite: Hist. 375. Hill
- 677. Problems in the Civil War and Reconstruction.** (3:3:0) Prerequisite: Hist. 377.
- 678. Problems in the Emergence of Modern America from the 1870s to 1920.** (3:3:0) Prerequisite: Hist. 378 or permission of instructor.  
Political, economic, social, and intellectual aspects of United States development (excludes Reconstruction).
- 679. Problems in Contemporary American History.** 3:3:0) Prerequisite: Hist. 379. Marlow
- 681. Sources and Problems in American Intellectual History.** (3:3:0) Prerequisites: Hist. 471, 472. Hill, Marlow  
Intensive reading of source materials in intellectual and social history.
- 690R. Graduate Seminar in History.** (1-3:1-3:0 ea.)  
Advanced research and analysis of important historical problems and movements.
- 698. Special Readings in History.** (1-2:0:Arr.)
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)
- 798. Special Readings in History.** (1-2:0:Arr.)
- 799. Dissertation for Doctor's Degree.** (Arr.)

## Home Economics Education

**Associate Professor:** Brasher (chairman, 2234-B SFLC).

**Program:** Master of Science (M.S.).

**Application Consideration Dates:** Same as Graduate School deadline.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** Undergraduate emphasis in home economics education, Ed. 660 or CDFR 596R, and Stat. 552.

**Field:** Home economics education.

**Minors Permissible:** Option I—any established minor in the College of Family Living, College of Education, or College of Social Sciences; Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.).

**Required Courses:** Home Ec. Ed. 530, 532, 630, 650, and 689.

### Courses

**521R. Workshop in Home Economics Education.** (1-2:Arr:Arr. ea.) Prerequisite: consent of instructor.

Intensive study of application of principles and theory in home economics education.

**530. Home Economics Education for Adults.** (2:2:0) Prerequisites: Home Ec. Ed. 489; consent of instructor.

The principles, practices, programs, materials, and resources for teaching home economics education to adults.

**532. Program Evaluation in Home Economics Education.** (2:2:0) Prerequisite: Ed. 479 or consent of instructor.

Analysis of evaluation techniques and construction of evaluation devices unique to home economics.

**630. Methods and Curriculum in Home Economics Education.** (3:3:0)

Intensive study of methods of teaching and curriculum development for home economics education programs in the secondary schools.

**650. Organization and Administration of Home Economics Education Programs.** (3:3:Arr.)

**689. Theoretical Foundation of Home Economics Education.** (3:3:Arr.)

Examination of social, economic, and educational forces which affect individuals and families.

**693R. Independent Readings and Conference.** (1-3:Arr.:Arr. ea.)

**699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Humanities and Comparative Literature

**Professor:** R. Britsch, I. Spears (emeritus).

**Associate Professor:** T. Britsch (chairman, 113 JKBA).

**Assistant Professors:** J. Green, D. Marshall, S. Sondrup.

**Program:** Master of Arts (M.A.).

**Entrance Examination Required:** None.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** Undergraduate major in the field of graduate emphasis or an undergraduate major or strong minor in each selected emphasis area.

**Requirements:** Minimum of 25 semester hours plus thesis (6-hr. min.—699).

**Fields:** Comparative literature, humanities.

#### Requirements:

##### Humanities emphasis.

1. Humanities 601 and 602.
2. A primary emphasis area (12 hours or more) and a secondary emphasis area (6 hours or more) selected from music history, art history, literature in English, literature in a foreign language, philosophy, or history. One of the emphasis areas must be nonliterary.
3. A bibliography and research course.
4. Language prerequisite: six semester hours of literature in a foreign language.

##### Comparative literature emphasis.

1. Humanities 610 (or 310 if not previously taken).
2. At least one course from the Humanities 371-375 series in addition to any taken on the undergraduate level.
3. From the courses in literature offered by the English and language departments: a primary emphasis on one ancient or modern literature (for example, Latin or German or English) and secondary emphasis on another. In the primary area (9 hours or more), at least two of the courses must be on the graduate level; in the secondary area (6 hours or more), at least one course must be on the graduate level. Work must be done in the original languages. Special emphasis should be placed on one era or period (for example, classicism or romanticism) and secondary emphasis on another.
4. A bibliography and research course.
5. One seminar in comparative literature.
6. A reading knowledge of two foreign languages. It is recommended that one be Greek or Latin.

### Courses

- 601. The Arts in Historical Context: Greece to the High Renaissance.** (3:3:0) F. 1973.  
A historical study of the major arts of the western world, from Classical Greece to the High Renaissance.
- 602. The Arts in Historical Context: Late Renaissance through the Modern Age.** (3:3:0) W. 1974.  
A historical study of the major arts of the western world, from the later Renaissance through the Modern Age.
- 610. Methods of Study in Comparative Literature.** (3:3:0) Prerequisite: consent of instructor.  
Approaches to the study of relationships among literatures and to analysis of types, genres, styles, etc.; definition of movements and periods.
- 690R. Seminar in Comparative Literature.** (3:3:0 ea.) Prerequisite: Hum. 610 or consent of instructor.  
Selected problems in comparative literature. Course content varies from semester to semester.

**695R. Individual Readings.** (1-2:Arr.:Arr. ea.)

For graduate majors in humanities or comparative literature only, with permission of department chairman.

**699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Industrial Education

**Professors:** Hinckley, Jeppsen (emeritus), McArthur, McKell (chairman, 250 SNLB).

**Associate Professors:** Allen, Holt, Grover, Mortensen, Nish, Simmons.

**Assistant Professor:** Brown.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

**Program:** Master of Industrial Education (MIE).

### Master of Industrial Education

**Prerequisites:** A valid industrial education teaching certificate and a minimum of one year's teaching experience in industrial education.

**Fields:** Industrial arts education, technical education.

**Minors Permissible:** (9-10 semester hours) Art, instructional media, educational psychology, special education, guidance and counseling, junior college curriculum, educational supervision and administration, community school, others with departmental approval; Option II.

**Requirements:** Minimum of 33 semester hours, including a field project.

**Required Courses:** Ind. Ed. 610 or 615, 690, 694R (2-hr. min.), 645, 698; Ed. 560; and a minimum of 6 semester hours selected from graduate industrial and technical education courses.

### Courses

**505. Industrial Arts for Elementary Teachers.** (2:2:0)

Nature and needs of teachers instructing industrial arts in the elementary schools, with emphasis on content and procedures.

**535. Industrial Education Safety and Liability.** (2:2:0)

Principles of accident causes and prevention in industrial education laboratories. Teacher and student responsibility regarding liability; present laws affecting school safety.

☐ **Technology 535. Advanced Physical Metallurgy.** (3:3:0)**540. Industrial Occupational Information and Guidance.** (2:2:0)

Instruction in current industrial and technological advances related to industrial education.

☐ **Education 551. Research Design in Education.**☐ **Statistics 552. Statistical Methods in Education I.** (3:3:0)☐ **Mechanical Engineering 555. Mechanical Forming Methods.** (3:3:0)☐ **Mechanical Engineering 556. Advanced Physical Metallurgy.** (3:3:0)☐ **Education 560. Educational Tests and Measurements.** (3:3:0)



- 593R. Workshop in Industrial Education.** (1-3:Arr.:Arr. ea.)  
Instruction in current industrial and technological advances related to industrial education.
- 610. History and Trends in Industrial and Technical Education.** (2:2:0)  
Historical developments of industrial and technical education programs from their early beginnings to the present time.
- 615. Principles and Objectives of Industrial and Technical Education.** (2:2:0)  
General philosophy, principles, and objectives of industrial arts, vocational education, and technical education programs.
- 625. Course Construction in Industrial and Technical Education.** (2:2:0)  
Preparation and use of a course of study in industrial and technical fields based upon an analysis of the occupation.
- 630. Problems of Adult Industrial Education.** (2:2:0)  
Development of the adult industrial education movement and the problems relative to teaching adults, with emphasis on continuing education.
- 635. Planning and Equipping Industrial and Technical Programs.** (2:2:0)  
A study of industrial and technical school laboratories designed to facilitate supervised instruction in industrial arts, vocational education, and technical education.
- 640. Coordination and Supervision of Industrial and Technical Education.** (2:2:0)  
Methods of supervision and coordination of industrial arts, vocational education, and technical education programs, including laws, regulations, and policies affecting these programs.
- 645. Visual and Graphic Materials in Industrial Education.** (2:1:2)  
Basis for the selection, development, and use of visual and graphic materials and their contribution to facilitating instruction in industrial and technical education.
- **Education 660. Research Design and Technical Writing in Education.** (3:3:0)
- 690R. Seminar.** (1:1:0 ea.)  
Latest developments and research findings in the field of industrial and technical education are reviewed.
- 694R. Reading and Conference.** (1-3:1-3:0 ea.)  
Limited to a maximum of six credit hours.
- 695R. Problems in Industrial and Technical Education.** (1-3:1-3:3-9 ea.)  
Limited to a maximum of six credit hours.
- 698. Field Project.** (2-4:Arr.:Arr.)
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Institute of Government Service

**Distinguished Professor:** Grow.

**Professors:** Daniels, Dyer, Knighton, Moffitt.

**Associate Professors:** Buckwalter, Harlow, Slover, Snow (director, CRWH).

**Assistant Professors:** Williams, Wright.

**Program:** Master of Public Administration (MPA).

**Entrance Examination Required:** Graduate Record Examination (general aptitude section).

**Application Consideration Date:** April 1.

**Entry Time:** Fall Semester only.

**Master of Public Administration**

**Prerequisite:** A bachelor's degree.

**Field:** Government service.

**Minor Permissible:** See Areas of Specialization.

**Requirements:** Minimum of 60 semester hours, including one area of specialization; written comprehensive examination.

**Required Courses:** Public Admin. 600, 601, 602, 603, 604, 605, 606, 607, 608, 610, 642R; Org. Behav. 610.

The basic mission of the Institute of Government Service is to prepare students for positions of leadership in the public service—state, local, and national. The program is also designed to serve those who may seek positions with public and private governmental research organizations, as well as those who may find employment with a wide variety of semiprivate organizations whose purposes are public.

**Courses**

- 600. The Fundamentals of Public Administration. (3:3:0)**  
A survey of the study and practice of public administration in modern society.
- 601. Quantitative Analysis. (3:3:0)**  
Research methods in public administration; statistical analysis for decision making.
- 602. Organizational Analysis. (3:3:0)**  
Classical and contemporary theories, empirical research in large-scale organizations, and the impact of bureaucracy in modern society.
- 603. Public Personnel Administration. (3:3:0)**  
Processes and procedures, controls, and problems of public personnel administration.
- 604. Public Finance Administration. (3:3:0)**  
Organization for public finance administration, sources of public revenue, administrative aspects of budget preparation and control, intergovernmental relationships.
- 605. Management Information and Control Systems in Government. (3:3:0)**  
Basic concepts of financial information for planning and control decisions; designs of accounting systems and the use of financial reports.
- 606. Administrative Analysis. (3:3:0)**  
The practical application of research to administrative and community problems, emphasis on field experience, report writing.
- 607. Public Policy Development and Program Planning. (3:3:0)**  
Public policy development, decision making, and program planning.
- 608. Contemporary Issues and the Public Administrator. (3:3:0)**  
An examination of contemporary public issues and their impact upon the administration of public programs.
- 609. Practicum in Public Administration. (2-6:0:0)**
- 610. Project in Public Administration. (3:3:0)**  
Required of all majors; to be taken during the third semester of enrollment.
- 620. Municipal Administration. (3:3:0)**  
The functions and environment of the municipal administrator.

- 621. City Planning.** (3:3:0)  
Basic problems and techniques in city planning.
- 622. State Government Administration.** (3:3:0)  
Problems and issues, the changing role of state government, organizational and administrative innovations to meet new and changing demands.
- 630. International Project Administration.** (3:3:0)  
The administration of technical assistance, with emphasis on the cultural restraints of programs transfer.
- 631. Studies in Public Personnel Administration.** (3:3:0)  
Special studies in public personnel administration.
- 640R. Program Administration.** (3:3:0)  
Basic factors underlying the effective administration of specific functional areas of public administration.
- 641R. Studies in Financial Management for Public Administrators.** (3:3:0)  
Special studies in public finance administration.
- 642R. Development Seminar in Public Administration.** (3:3:0)  
Required of all majors each semester in residence.
- 643R. Directed Readings in Public Administration.** (1-3:1-3:0) Prerequisite: permission of sponsor and instructor.

## Languages: Classical, Biblical, and Middle Eastern Languages

**Professor:** Clark (chairman, 240 B-34 MCKB).

**Associate Professor:** Phillips.

**Assistant Professor:** Mackay

### CLASSICS

**Program:** Master of Arts (M.A.).

**Entrance Examination Required:** Graduate Record Examination (general aptitude).

**Entry Times:** Fall Semester recommended.

### Master of Arts

**Prerequisites:** Undergraduate major in Latin or Greek or their equivalent and reading knowledge of French or German.

**Fields:** Greek, Latin, Latin teaching emphasis.

**Minors Permissible:** Any established minor in the humanities or the sciences; Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** None.

## Classical Languages

### Courses

#### GREEK

- 561. Attic Orators.** (3:3:0) Prerequisite: consent of instructor. Phillips, Mackay
- 612. Readings in Greek: Paul's Letters.** (3:3:0) Prerequisite: one year of Greek or consent of instructor. Phillips, Mackay

613. **Readings in Greek: General Epistles and the Apocalypse.** (3:3:0) Pre-requisite: one year of Greek or consent of instructor. Phillips, Mackay
665. **The Greek Historians.** (3:3:0) Prerequisite: consent of instructor. Phillips, Mackay
671. **Homer.** (3:3:0) Prerequisite: consent of instructor. Phillips, Mackay
679. **The Greek Dramatists.** (3:3:0) Prerequisite: consent of instructor. Phillips, Mackay
- 694R. **Seminar in Literature.** (3:3:0) Prerequisite: consent of instructor. Phillips, Mackay
699. **(Greek-Latin) Thesis for Master's Degree in Classics.** (6-9:Arr.:0) Phillips, Mackay

### LATIN

561. **Medieval Latin.** (3:3:0) Prerequisite: Lat. 301 or 112 or equivalent. Mackay
621. **Romance Philology.** (3:3:0) (m) Clark
661. **Cicero.** (3:3:0) Clark, Mackay
665. **The Latin Historians.** (3:3:0) Clark, Phillips
671. **Virgil.** (3:3:0) Clark, Phillips
675. **The Latin Poets.** (3:3:0) Clark, Phillips  
Horace, Ovid, Lucretius, etc.
679. **The Latin Dramatists.** (3:3:0) Clark, Phillips  
Plautus, Terence, etc.
- 681, 682. **The Latin Fathers.** (3:3:0 ea.) Prerequisite: consent of instructor. Mackay, Phillips
- 690R. **Directed Readings.** (1-2:Arr.:0 ea.) Clark, Mackay, Phillips  
Individual study on a graduate level.
- 692R. **Seminar in Philology.** (2:2:0 ea.) Clark, Mackay, Phillips
- 694R. **Seminar in Literature.** (2:2:0 ea.) Clark, Phillips
699. **(Greek-Latin) Thesis for Master's Degree in Classics.** (6-9:Arr.:0)

### Semitic Languages

#### HEBREW

681. **Studies in the Hebrew Old Testament.** (3:3:0) Prerequisite: two years of Hebrew or consent of instructor.
682. **Studies in Hebrew.** (3:3:0) Prerequisite: Hebrew 681.

## Languages: French and Italian

**Professors:** Brown, Green, Lee (emeritus).

**Associate Professors:** H. Clark, Lambert, Turner (chairman, 357 MCKB).

**Assistant Professors:** Ashford, Kimball, Jensen.

**Programs:** Master of Arts (M.A.), Doctor of Philosophy (Ph.D.).

**Entrance Examinations Required:** None.



**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** A bachelor's degree in French or equivalent, plus a reading knowledge of another foreign language.

**Fields:** French language, French literature, French teaching emphasis.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 28 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** French 601 and 677R.

### Doctor of Philosophy

**Prerequisites:** A bachelor's degree or a master's degree in French.

**Fields:** French language, French literature, French teaching emphasis.

**Minors Permissible:** Option I or Option II.

**Requirements:** A minimum of 62 semester hours plus a dissertation (18-hr. min.—799). Languages required: a reading knowledge of German, Latin, and one other Romance language.

**Required Courses:** French 601, 677R.

### Courses

**511. Advanced Conversation for Students of Institute.** (0:2:1)

**520. Teaching French Grammar for Students of Institute.** (2:2:0)

**601. Bibliography and Research Techniques.** (1:1:0)

☐ **Latin 621. Romance Philology.** (3:3:0) R. Clark

**622. History of French Language.** (2:2:0) R. Clark

**626. French Phonology.** (2:2:2) Prerequisite: French 326 or consent of instructor. Recommended for teachers.

**629. Stylistics.** (2:2:0)

Intensive linguistic and literary analysis of French, especially from modern writers; syntax, translation, advanced stylistic analysis, and advanced explication of texts.

**645R. Studies in French Civilization.** (3:3:0)

**660R. Studies in Medieval French Literature.** (3:3:0) Ashford  
Course content varies from semester to semester. The specific topic for a given term is listed in the class schedule.

**665R. Studies in Renaissance French Literature.** (3:3:0) Ashford  
Course content varies from semester to semester. The specific topic for a given term is listed in the class schedule.

**670R. Studies in Seventeenth-Century French Literature.** (3:3:0) Brown, Green  
Course content varies from semester to semester. The specific topic for a given term is listed in the class schedule.

**675R. Studies in Eighteenth-Century French Literature.** (3:3:0) Lambert  
Course content varies from semester to semester. The specific topic for a given term is listed in the class schedule.

- 677R. Principles of Foreign Language Learning and Teaching.** (2:2:0 ea.) Pre-requisite: French 377 or consent of instructor. Jensen
- 680R. Studies in Nineteenth-Century Romantic and Post-Romantic Movements.** (3:3:0) H. Clark, Green, Kimball  
Course content varies from semester to semester. The specific topic for a given term is listed in the class schedule.
- 685R. Studies in Twentieth-Century Pre- and Post-World War II Movements.** (3:3:0) Turner  
Course content varies from semester to semester. The specific topic for a given term is listed in the class schedule.
- 690R. Directed Readings.** (1-3:Arr.:0 ea.)  
Individual study on a graduate level, to fit the needs of the graduate student. Not to be taken in lieu of classes.
- 692R. Seminar in Philology.** (1-2:1-2:0 ea.) R. Clark
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)
- 795R. Seminar in French Literature.** (3:3:0 ea.)  
Course content varies from semester to semester. The specific topic for a given term is listed in the class schedule.
- 799. Dissertation for the Ph.D. Degree.** (1-6:Arr.:0)

## Languages: Germanic Languages

**Professors:** Davis, Folsom, Rogers, Speidel, Watkins (chairman, 326 MCKB).  
**Associate Professors:** Baker, Smith (graduate coordinator, 321 MCKB).  
**Assistant Professors:** Roos, Keele.

**Programs:** Master of Arts (M.A.), Doctor of Philosophy (Ph.D.).

**Entrance Examinations Required:** None.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Fall Semester recommended.

### Master of Arts

**Prerequisites:** Undergraduate major in German or its equivalent and knowledge of a second European language of 201 equivalent level.

**Fields:** German language, German literature, German teaching emphasis.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699); written comprehensive examinations.

**Required Courses:** German 601, 620, 689; one seminar in specialty area.

### Doctor of Philosophy

**Prerequisites:** Reading knowledge in two foreign languages (usually French, Russian, Latin).

**Fields:** German language, German literature, German teaching emphasis.

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 62 semester hours plus a dissertation (18-hr. min.—799).

**Required Courses:** German 601, 620, 689; two seminars in specialty area.

## GERMAN

### Courses

- |  |                       |
|--|-----------------------|
| 601. Bibliography and Research Techniques. (1:1:0)   | Davis, Smith          |
| 615. Teaching German Grammar. (3:3:0) Prerequisites: Ling. 325, German 429, or consent of instructor.  | Folsom, Watkins       |
| 620. History of the German Language. (3:3:0)   | Folsom, Watkins       |
| 622. Gothic and Comparative German Linguistics. (3:3:0)  | Folsom, Watkins       |
| 623. Old High German and Old Saxon. (3:3:0)  | Folsom, Watkins       |
| 626. German Phonology. (3:3:0) Prerequisite: German 326 or consent of instructor.<br>A study of the sounds of German and its stress, rhythm, and intonation patterns, contrasted and compared with those of English. | Folsom                |
| 628, 629. Middle High German I, II. (3:3:0 ea.)  | Folsom, Roos, Watkins |
| 650. Literary Criticism. (3:3:0)   | Baker, Keele, Speidel |
| 670. German Baroque Literature. (3:3:0)  | Roos                  |
| 681. German Romanticism. (3:3:0)   | Baker, Keele, Speidel |
| 683. German Realism. (3:3:0)   | Baker                 |
| 689. Contemporary German Literature. (3:3:0) (m) Prerequisite: consent of instructor.  | Keele, Smith          |
| 690R. Special Studies in German. (1-3:Arr.:Arr. ea.)<br>By special permission only.  |                       |
| 692R. Seminar in Philology. (3:3:0 ea.)<br>Topics to be announced.   |                       |
| 694R. Seminar in Literature. (3:3:0 ea.)<br>Topics to be announced.  |                       |
| 697R. Seminar in the Teaching of German. (2:2:0 ea.)<br>Latest developments and research in various aspects of language teaching.  | Jarvis                |
| 699. Thesis for Master's Degree. (6-9:Arr.:Arr.)   |                       |
| 741. German Lyric Poetry. (2:2:0)  | Davis, Keele          |
| 742. The German Drama to 1880. (3:3:0)   | Baker, Rogers         |
| 743. The German Drama from 1880 to Present. (3:3:0)  | Keele, Rogers         |
| 744. The German Novel to 1880. (3:3:0)   | Baker, Speidel        |
| 745. The German Novel from 1880 to Present. (2:2:0)  | Keele, Smith, Speidel |
| 746. The German Short Story. (3:3:0)   | Davis, Roos, Smith    |
| 776. Lessing. (2:2:0)  | Davis, Rogers         |
| 777. Schiller. (2:2:0)   | Davis, Smith          |
| 778. Goethe. (2:2:0)   | Rogers                |
| 792R. Seminar in Philology. (2:2:0 ea.)  |                       |

**794R. Seminar in Literature.** (2:2:0 ea.)

**799. Dissertation for the Ph.D. Degree.** (Arr.)

## Languages: Spanish and Portuguese

**Professors:** Anderson, Compton, de Jong (emeritus), Dowdle, Gibson (chairman, 303 MCKB), Hansen, Moon, Wilkins

**Associate Professors:** Lyon, Rosen, Shreeve, Taylor.

**Assistant Professors:** Ashworth, Clegg, Dennis, Jackson, Quackenbush.

### Programs:

Spanish: Master of Arts (M.A.), Doctor of Philosophy (Ph.D.).

Portuguese: Master of Arts (M.A.).

**Entrance Examinations Required:** None.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** Undergraduate major in Spanish or Portuguese, or its equivalent.

**Fields:** Spanish: language, literature, teaching emphasis.

Portuguese: language, literature.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 28 semester hours plus thesis (6-hr. min.—699). In the language teaching emphasis, 30 semester hours plus thesis, plus one year of teaching experience. The reading knowledge of a second foreign language is also required.

### Doctor of Philosophy

**Prerequisites:** Undergraduate major in Spanish or Portuguese, or its equivalent.

**Fields:** Spanish language, Spanish literature, Spanish teaching emphasis.

**Minors Permissible:** Any approved minor.

**Requirements:** A minimum of 62 semester hours plus dissertation (18-hr. min.—799). A reading knowledge of German, Latin, and one other Romance language.

**Required Courses:** As determined in consultation with the graduate advisory committee.

## PORTUGUESE

### Courses

**521. Romance Philology.** (3:3:0) Clark, Clegg

**522. History of the Portuguese Language.** (2:2:0) Gibson, Jensen

**552. Machado de Assis.** (2:2:0) Prerequisites: Portuguese 441, 451, or equivalent. Dennis

**553. O Modernismo.** (2:2:0) Prerequisites: Portuguese 441, 451, or equivalent. Dennis, Jensen

The modern movement in Brazilian literature (1920-1945).

**620R. Portuguese Composition.** (3:3:0 ea.) Dennis



642. Contemporary Portuguese Literature. (3:3:0) Dennis  
 650. Brazilian Literature. (3:3:0) Dennis  
 651. Contemporary Brazilian Literature. (3:3:0) Dennis  
 690. Directed Readings. (1-2:0:Arr.)  
 692. Seminar in Philology. (2:2:0)  
 694R. Seminar in Literature. (2:2:0 ea.)  
 699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

## SPANISH

### Courses

520. Advanced Spanish Composition and Grammar. (2:2:0)  
 521. Romance Philology. (3:3:0) Clark, Clegg  
 522. History of the Spanish Language. (2:2:0) Clegg, Dowdle, Gibson  
 556. Hispanic-American Poetry. (2:2:0) Compton, Lyon, Quackenbush  
 580R. Nineteenth-Century Spanish Literature. (3:3:0) Prerequisite: Spanish 441  
 or consent of instructor. Ashworth, Dowdle, Gibson  
 584. Generation of '98. (3:3:0) Ashworth, Moon  
 601. Bibliography and Research Techniques. (2:2:0) Rosen, Taylor  
 615. Teaching Spanish Grammar. (2:2:0) Prerequisites: Ling. 325 and Spanish  
 326 or consent of instructor. Anderson, Clegg  
 An analysis and organization of Spanish phonology, morphology, and  
 syntax for effective teaching of Spanish grammar.  
 626. Spanish Phonology. (2:2:0) Prerequisite: Spanish 326 or consent of in-  
 structor. Anderson, Clegg  
 A study of the sounds of Spanish and its stress, rhythm, and intonation  
 patterns contrasted and compared with those of English.  
 645. Advanced Studies in Hispanic Culture. (2:2:0)  
 653. Latin-American Drama. (2:2:0) Quackenbush  
 654. The Spanish-American Novel. (2:2:0) Compton, Hansen, Lyon,  
 Quackenbush  
 655. Special Studies in the Spanish-American Novel. (2:2:0) Compton, Hansen,  
 Lyon, Quackenbush  
 656. Modernista Prose and Poetry. (2:2:0) Compton, Lyon, Quackenbush  
 657. Hispanic-American Essay. (2:2:0) Lyon, Wilkins  
 658. Hispanic-American Short Story. (2:2:0) Compton, Lyon, Quackenbush  
 660. Spanish Medieval Literature. (2:2:0) Dowdle, Gibson  
 670R. Golden-Age Literature. (3:3:0) Dowdle, Rosen  
 677. Principles of Foreign Language Learning and Teaching. (2:2:0) Jackson,  
 Taylor  
 Study of basic theories and principles of language learning and teaching.  
 Issues, trends, and current practices are examined. For experienced lan-  
 guage teachers.  
 685R. Twentieth-Century Literature. (2:2:0 ea.) Ashworth, Moon

- 690R. Directed Readings.** (1-2:Arr.:Arr. ea.) Prerequisite: consent of instructor. Individual study on a graduate level to fit the needs of the graduate student.
- 692R. Seminar in Philology.** (2:2:0) Anderson, Clark, Clegg, Gibson
- 694R. Seminar in Spanish Literature.** (2:2:0 ea.)
- 697R. Seminar in Spanish Teaching.** (2:2:0 ea.) Anderson, Jackson, Rosen, Taylor  
For experienced language teachers.
- 699. Thesis for Master's Degree.** (6:Arr.:Arr.)
- 794R. Seminar in Literature.** (2:2:0 ea.)
- 799. Dissertation for the Ph.D. Degree.** (Arr.)

## Latin American Studies

**Professors:** Addy (history), Bateman (economics), Blair (linguistics), Compton (Spanish), Corbridge (agricultural economics), Gibson (Spanish), Layton (geography), Warner (history), Wilkins (language research center).

**Associate Professors:** Bishop (education), Craig (sociology), DeHoyos (social history), Fairbanks (communications), Madsen (teaching English as a second language), Lyon (Spanish), Shreeve (coordinator, 172 FB), Spenser (sociology), Tullis (political science).

**Assistant Professors:** Chandler (history), Clegg (Spanish), Dennis (Portuguese), Fletcher (law enforcement), Quackenbush (Spanish), Santiago (continuing education), Skinner (youth leadership).

**Instructors:** Ferguson (library science), Franz (food science and nutrition).

**Program:** Master of Arts (M.A.).

**Entrance Examination Required:** None.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** Undergraduate preparation in the areas of Latin American studies. Oral and written proficiency in the Spanish or Portuguese language,\* to be determined by individual examination or successful completion of Spanish or Portuguese 321.

**Field:** Latin American Studies.

**Minors Permissible:** Any approved minor.

**Requirements:** For the Master of Arts Degree, the student will complete at least the following 34 hours of graduate work:

1. 15 semester hours (including at least one research seminar) in his preferred department of concentration.
2. 5 semester hours in a related department.
3. 5 semester hours in a second related department.
4. 3 semester hours in a Latin American Studies Seminar (690R).
5. 6 semester hours of research and thesis reflecting the student's multi-disciplinary interests and acceptable to both his department of concentration and Latin American Studies.

A final oral examination is required.

Of the 34 semester hours, 21 (including the thesis) must be in Latin American content courses. Those courses are to be approved by the coordi-

nator. Recommended areas for major and minor fields are: business, agricultural economics, food service and nutrition, law enforcement, public relations, education (elementary, secondary, international), youth leadership, health, economics, international relations, linguistics, Teaching English as a Second Language, nursing, Spanish, sociology, political science, public administration, organizational behavior, etc.)

### Graduate Minor

**Prerequisites:** None.

**Field:** Latin American Studies.

**Requirements:** The same proficiency in Spanish or Portuguese as for the major; 11 hours in graduate-level courses in Latin American related subjects.

**\*Language Option:** When a student already has fluency in one of the required languages, he is encouraged to seek proficiency in the other or in a native language (Cakchiquel, Quechua, Guaraní, etc.) of Latin America.

**Study Abroad:** The University currently offers excellent opportunities for study in Spain and Latin America. These programs are especially advantageous to the student of Latin American Studies and provide an opportunity for on-the-scene study in the Spanish language, history, geography, political science, sociology, and various other related fields. The courses offered in these programs help fulfill the requirements for the M.A. Degree in Latin American Studies. All students are strongly encouraged to participate in one or more of these programs, especially those who have had no previous overseas experience.

### Courses

#### Business Management

- 430 (3) Introduction to International Business (Latin American emphasis)
- 431 (3) International Marketing (Latin American emphasis)

#### Communications

- 580 (3) Comparative World Communication Systems (Latin America)

#### Geography

- 520R (2) Seminar in Regional Geography (semesters with Latin American content)
- 580 (2) Geography of Underdeveloped Areas

#### History

- 351 (3) History of Latin America
- 453 (3) Mexico
- 454 (3) Argentina, Brazil, Chile
- 455 (3) Northern South America
- 457 (3) The Indian in Latin American History
- 460 (2) The Spanish Borderlands
- 650 (2) Latin America

#### Languages

##### (Portuguese)

- 552 (2) Machado de Assi
- 553 (2) O Modernismo
- 620 (3) Portuguese Composition
- 621 (3) Portuguese Composition
- 651 (3) Contemporary Brazilian Literature

##### (Spanish)

- 455 (2) Ibero-American Culture
- 520 (2) Advanced Spanish Composition and Grammar
- 556 (3) Hispanic Poetry
- 645 (2) Advanced Studies in Hispanic Cultures
- 654 (2) Latin American Novel: Beginnings

- 655 (2) Latin American Novel: Contemporary
- 656 (2) The Modernista Movement
- 658 (2) Hispanic-American Short Story

#### **Latin American Studies**

- 690 (1-3) Interdisciplinary Seminar on Contemporary Latin American Problems  
Prerequisite: consent of the instructor

#### **Political Science**

- 318 (3) Minority Group Politics in America
- 356 (3) Modernization and Political Change in South America
- 357 (3) Modernization and Political Change in Mexico and the Caribbean
- 378 (3) International Relations of Latin America

#### **Sociology**

- 590R (1-3) Special Topics in Sociology (course will be designed to meet the needs of Latin American students)

## **Library and Information Sciences**

**Associate Professors:** H. Thayne Johnson (director, 548 HBLL), Marchant, Thorne, Wright.

**Assistant Professors:** Lamson, Purdy, Smith, Stirling.

**Program:** Master of Library Science (MLS).

**Entrance Examination Required:** Marginal applicants may be required to take the Graduate Record Examination.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration except at Spring Term.

### **Master of Library Science**

**Required Courses:** LIS 501, 513, 523, 528, 534, 536, 538, 696R (2), 697. Additional courses to total a minimum of 38 hours will be chosen in consultation with an adviser. LIS 501 should be taken the first semester.

**Field:** Library Science.

**Requirements:** 38 semester hours (a minimum of one calendar year). Some prerequisites may be required. A comprehensive examination and a research project and project defense are required during the last semester.

**Additional Requirements:** There is a large range of skills useful to librarians, including such skills as foreign languages, instructional media, communications, computer programming, systems analysis, statistics, and English usage. Depending upon the student's objectives, up to 12 hours of skill courses may be required. No more than 6 hours of skill credit may be applied toward the degree.

In addition to course work, attendance at a number of informal lectures without credit is required of all students each semester. These colloquia are intended to broaden the student's outlook on librarianship and related fields through presentations by outstanding guest lecturers.

Undergraduate students may register for LIS 513, 523, 528, 557. All other classes are restricted to LIS graduate majors and minors, with the following exception: computer science undergraduate and graduate majors, educational media graduate majors, and communications graduate majors may register for LIS 538, 596, and 656.

S. R. and Anita Shapiro (New York bookman) has established a gift of a \$100 U.S. Savings Bond to the outstanding graduate each year. This may be awarded as two \$50 bonds to two outstanding students.



### Courses

- 501. Foundations of Library and Information Sciences.** (4:4:0)  
The basic principles and concepts underlying the cultural, intellectual, and historical foundations of library and information sciences.
- 513. Selection and Acquisition of Materials.** (3:3:0)  
Principles, criteria, and practice in evaluation, selection, and acquisition of book and nonbook materials. Required.
- 523. Reference Theory and Service.** (3:3:0)  
Intensive study of basic reference materials and services, including general bibliographic tools and form. Required.
- 528. Organization and Processing of Materials.** (4:4:0)  
Theory and principle of the documentation of book and nonbook materials as expressed through classification and cataloging.
- 534. Research in Library and Information Sciences.** (2:2:0)  
Bases, methods, and techniques of research. Experience in manipulating data. Statistical computer programs will be used and a research paper completed under individual advisement.
- 536. Library Organization and Administration.** (3:3:0) Prerequisite: LIS 501.  
Organization and administration of libraries. Organizational and administrative theory discussed. Problems associated with personnel, authority, policy, planning, reports, standards, etc.
- 538. Documentation and Information Retrieval.** (3:3:0)  
Survey of nonconventional and experimental methods and devices for cataloging, indexing, and retrieving; data processing and the library.
- 539. Practicum in Librarianship.** (1:1:0) Prerequisites: completion of or concurrent registration in LIS 501, 513, 523, and 528.  
Thirty hours of practice work under the supervision of a professional librarian. Required.
- 543. Literature of the Social Sciences.** (2:2:0)  
Analysis of subject concerns, methodology, and unique information needs of the various social science fields. Examination of literature resources and problems of bibliographic control.
- 545. Literature of the Humanities.** (2:2:0)  
Analysis of subject concerns, methodology, and unique information needs of the various humanities fields. Examination of literature resources and problems of bibliographic control.
- 547. Literature of the Sciences.** (2:2:0)  
Analysis of subject concerns, methodology, and unique information needs of the various fields of science. Examination of literature resources and problems of bibliographic control.
- 557. The Instructional Media Center in the School.** (2:2:0) Prerequisite: LIS 536.  
The place of the IMC in educational programs. Standards, management, equipment, budget, and services.
- 567. Library Services for the Young Adult.** (2:2:0)  
Critical study of reading interests and library needs of young adults.
- 580R. Workshop: Current and Special Problems.** (1-2:1-2 weeks: 40-50 hrs. per week ea.)
- 590. Current Problems in Technical Services.** (3:3:0)  
Consideration of major problems in acquisitions, cataloging, classification, and conservation of materials.

- 596. Advanced Information Science.** (3:3:0)  
Formal methods of intellectual access to documents. Automatic content analysis. Classificatory, query strategy, relevance, and similar concepts and techniques.
- 614. Literature of Mormonism.** (2:2:0)  
An intensive survey of the literature of Mormonism with emphasis upon the selection, organization, and utilization of this literature in libraries.
- 624. Government Publications.** (2:2:0)  
Intensive study of documents published by federal, state, and local governments and the U.N., with attention to their selection, organization, and use in different types of libraries.
- 628. History and Theory of Manuscription.** (2:2:0)  
Development of written communications and librarianship in the ancient world.
- 632. History and Theory of Printing.** (2:2:0)  
Development of printed communications and librarianship in the modern world.
- 633. Advanced Library Administration.** (3:3:0)  
Application of such modern concepts as systems theory and participative management to library organizational behavior.
- 642. Seminar: Advanced Reference and Bibliography.** (3:3:0)  
Types of bibliography, advanced bibliographic techniques, administrating reference services, analysis of research problems. The librarian-user interface.
- 645. Seminar: Classification Theory.** (2:2:0)  
Philosophical and theoretical bases of classification and cataloging.
- 656. Information Systems Analysis and Library Automation.** (3:3:0)  
Operations research techniques and data processing in all areas of librarianship.
- 662. Trends in Library Services for Children.** (3:3:0) Prerequisite: Ed. 340.  
Historical development of children's libraries, materials, and services. Publishers, illustrators, and authors are considered. Relationship to sociological, educational, and philosophical forces of various periods discussed.
- 664. Seminar: Philosophical Bases of Library and Information Sciences.** (2:2:0)  
The social, ethical, logical, and epistemological bases of library and information sciences.
- 668. Seminar: Psycho-Sociological Bases of Library and Information Sciences.** (2:2:0)  
Patterns of behavior in the librarian-user interface involving communication and information transfer.
- 694R. Independent Research.** (1-2:Arr.:0 ea.)
- 696R. Research Seminar.** (2:2:0)
- 697. Project Seminar.** (2:2:0)

The following courses may be used as electives; some may be required to complete areas of specialization.

- ☐ **Computer Science 351. Information Structure.** (3:3:1)
- ☐ **Computer Science 451. Information Systems Analysis.** (3:3:2)
- ☐ **Education 340. Children's Literature.** (2:2:0)
- ☐ **Education 406. Educational Media Production and Utilization.** (2:1:3)

- ☐ **Education 506. Educational Media in the School.** (3:2:3)
- ☐ **Education 609. Selection and Utilization of Audiovisual Materials.** (2:2:0)
- ☐ **Education 610. Designing and Producing Instructional Materials.** (2:2:1)
- ☐ **Education 611. Coordination of Educational Media.** (2:2:0)
- ☐ **Education 628. Children's Literature.** (2:2:0)
- ☐ **English 420. Literature for Adolescents.** (2:2:0)
- ☐ **Psychology 570. Computer Use in Behavioral Sciences.** (3:3:6)
- ☐ **Speech and Dramatic Arts 527. Storytelling.** (2:2:0)
- ☐ **Statistics 501. Statistics for Research Workers I.** (5:4:3)
- ☐ **Statistics 502. Statistics for Research Workers II.** (5:4:3)

## Linguistics

**Professors:** Blair, Cox (chairman, 157 FB).

**Associate Professor:** Madsen.

**Assistant Professor:** Lytle.

**Programs:** Master of Arts (M.A.), Graduate Certificate in Teaching English as a Second Language.

**Entry Times:** Fall Semester only for linguistics. Any regular registration for TESL M.A. and Certificate.

### Master of Arts in Linguistics

**Prerequisites:** (1) 5 credits in upper-division linguistics; (2) intermediate-level competence in two foreign languages (201 or equivalent) or high-level competence in one foreign language (321 or equivalent).

**Fields:** Applied linguistics, theoretical linguistics, TESL.

**Minors Permissible:** Any established minor in the humanities or the sciences; Option II.

**Requirements:** Minimum of 25 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** Ling. 528, 693.

### Courses

- 501R. General Linguistics.** (3:3:0)  
Topics in general linguistics; models and methodologies.
- 525. Descriptive Phonology.** (3:3:0) Lytle  
The structural description of the sound systems of language.
- 526. Generative Phonology.** (3:3:0)  
Techniques of analysis of phonological data and preparation of phonological statements through ordered rules.
- 527. Descriptive Morphology.** (3:3:0) Blair  
The structural description of linguistic forms.
- 528. Syntax.** (3:3:0) Lytle  
Prerequisite: Ling. 527.  
Fundamental approach to generative grammar. Techniques of analysis of linguistic data and preparation of grammatical statements through ordered rules.

- 529R. Linguistic Structures.** (3:3:1 ea.) Lytle  
A consideration and comparison of the phonological and morphological structures of several non-Indio-European languages. Students work with native informants.
- 531. Sociolinguistics.** (3:3:0) Prerequisite: consent of instructor.  
A survey of research and theory in anthropological linguistics and sociolinguistics.
- 590R. Readings in Linguistics.** (1-3:Arr.:0)  
Individual study of current linguistic literature. Occasional discussion sessions with instructor and other class members. Pass and fail only.
- 623R. Problems in Contrastive Linguistics.** (3:3:0) Blair  
Contrast of structures in English and selected languages and the development of grammatical description from these contrasts.
- 626. Problems in Historical Linguistics.** (3:3:0)  
Offered 1972 and alternate years.
- 693R. Seminar in Linguistics.** (2:2:1) Blair  
Advanced research and analysis of various linguistic problems.
- 699. Thesis for Master's Degree.** (1-6:Arr.:0)

### Master of Arts Degree and Graduate Certificate in Teaching English as a Second Language (TESL)

M.A. Candidates may choose from among four areas of emphasis: teaching, materials development, supervision-administration, or composite.

**Graduate Certificate.** The Certificate program (like the M.A. program with teaching emphasis) is designed to prepare teachers for both overseas and U.S. assignments. Type A Certificates include teacher certification; Type B Certificates do not.

**Prerequisites:** B.A. or B.S. degree and admission to Graduate School.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Requirements:** 35 semester hours (including thesis where applicable) for M.A.  
28 semester hours (including field study) for Certificate.

#### Required Courses (M.A.)

**Core Courses:** Engl. 529 or Ling. 528; ESL 527 (or Ling. 525), and ESL 528, 577, 578, 698 (ESL 201 required for most non-native speakers).

**Teaching emphasis:** core courses; ESL 579, 581, 583, culture course, and electives.

**Materials development emphasis:** core courses, minor, thesis, and electives.

**Supervision-administration emphasis:** core courses; minor, ESL 584, 697; and electives.

#### Required Courses (Graduate Certificate)

ESL 527 (or Ling. 525), 528, 577, 578, 579, 583, 696; Ling. 325 (or Engl. 321 or 325), Ling. 528 (or Engl. 529); culture course.

### Courses

- 527. Phonology of Modern English.** (3:3:3) Prerequisites: English 321, 325; Ling. 325 or equivalent. Luthy, Cox  
Articulatory phonetics, intonation, and contrastive analysis of English sounds with those of other languages.



- 528. Phonology of Modern English—TESL Laboratory.** (2:0:3) Prerequisite: completion of or concurrent registration in TESL 527 or equivalent. Luthy, Cox  
Practical experience in developing aural discrimination and accent correction skills. Extensive work with bilinguals.
- 577. Procedures in Teaching English as a Second Language.** (3:3:3) Prerequisites: Engl. 321, 529; or Ling. 423. Madsen, King  
Methods and materials used in teaching English as a second language; observation, discussion, and some teaching.
- 578. TESL Materials Selection and Development.** (3:3:0) (m—TESL) Prerequisite: completion of or concurrent registration in TESL 577. Madsen, King  
For TESL students. Evaluation and adaptation of texts, creation of tests, tapes, exercises, games, supplementary aids and texts.
- 579. TESL Student Teaching.** (4-8:0:4-8) Prerequisites: TESL 577 and consent of instructor. Madsen, King  
Teaching practice in a TESL setting. On-the-job training in planning instruction, preparing materials, and conducting actual classes.
- 696. TESL Field Study.** (1-2:1-2:0) Prerequisite: completion of or concurrent registration in TESL 577 and 578, or consent of instructor. Madsen, King  
Individual research projects for TESL Graduate Certificate candidates, culminating in a practical paper.
- 777. Problems in Teaching English as a Second Language.** (3:3:0) Madsen, King, Cox

## Mathematics

**Professors:** Burton, Crawley, Fearnley, Gee, Gill, Hiram (chairman, 292 MSCB), Jamison, Moore, Robinson, Yearout.

**Associate Professors:** Hansen, Higgins, Larsen, Peterson, Skarda, Snow, Wickes.

**Assistant Professors:** Armstrong, Campbell, Chatterley, Ferguson, Garner, Lamoreaux, Tolman, Walter, Wight, Wynn.

**Programs:** Master of Science (M.S.), Master of Arts (M.A.).

**Entrance Examinations Required:** For foreign applicants, the Graduate Record Examination.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** Credit at least equivalent to the Brigham Young University requirements for a B.S. degree in mathematics. Also, a year's sequence in abstract algebra and one in advanced calculus.

### OPTION I

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 18 semester hours of graduate mathematics, a minor (9 hrs.), plus thesis (6-hr. min.).

**Required Courses:** None.

**Special Examinations.** Two of four one-hour written examinations in the general areas of algebra, analysis, applied analysis, or topology. A third one-hour

written examination (content determined by the student's program or one of the two remaining general examinations).

### OPTION II

**Requirements:** Minimum of 24 semester hours of graduate mathematics courses plus thesis (6-hr. min.); a written comprehensive examination.

**Required Courses:** Three of the four sets: Math. 551, 552; Math. 631, 641; Math. 634, 647; or Math. 671, 672.

**Special Examinations:** Three of four one-hour written examinations in the general areas of algebra, analysis, applied analysis, or topology.

This program is designed to prepare students for (1) additional study and research in mathematics at the Ph.D. level, (2) employment in industry or government.

### Master of Arts

**Prerequisites:** Credit at least equivalent to the current Brigham Young University requirements for a B.A. degree in education with a teaching major in mathematics, a B.A. degree in mathematics, or a B.S. degree in mathematics.

**Minors Permissible:** Option I.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699); a written comprehensive examination; also state teacher certification. (Required certification courses may not be part of the graduate program.)

**Required Courses:** Math. 541, 542, 629. Any two-semester 600 sequence or Math. 551, 552.

This program is designed to prepare students for teaching mathematics in junior colleges or secondary schools.

### Master of Arts in Mathematics Education

**Prerequisites:** In-service status as a secondary teacher of mathematics.

**Minor Required:** Education — 12 hours.

**Required:** Education

- 536 (3) Secondary Curriculum and Methods
- 636 (3) Secondary Curriculum and Methods: Design

**Electives:** Education

- 506 (3) Instructional Media in the School Program
- 560 (3) Educational Test and Measurements
- 601 (3) Comparative Current Educational Philosophy
- 606 (4) History of Education in Europe and America
- 608 (3) Social Foundations of Education
- 656 (3) Advanced Educational Psychology
- 727 (2) Curriculum of the Public Schools

**Requirements:** Minimum of 36 semester hours (12 hours Education, 24 hours Mathematics). Math. 629 and any seven of the courses selected from the following: Math. 300, 332, 371, 385, 387, 451, or any 500- or 600-level courses (where no more than 10 hours of course work is selected from below the 500 level). No thesis required.

### Courses

**300. History of Mathematics.** (3:3:0) Home Study also. Prerequisite: Math. 112 or 301.

The development of mathematics, with emphasis on the underlying principles and motivations.

- 332. Introduction to Complex Analysis.** (3:3:0) Prerequisite: Math. 214 or 244.  
Complex algebra; analytic functions; integration in the complex plane; infinite series; theory of residues; conformal mapping.
- 371, 372. Abstract Algebra.** (3:3:0 ea.) Prerequisites: Math. 142, 214, or 111 and 301.  
Preliminary examination of algebraic systems: groups, rings, fields, vector spaces, linear transformations, matrices, etc.
- 385. Linear Algebra.** (3:3:0) Prerequisite: Math. 111 or 301.  
Vectors and matrices; linear equations; determinants; characteristic values; linear operators; quadratic forms, etc.
- 387. Theory of Numbers.** (3:3:0) Prerequisite: Math. 111 or 301.  
Foundations of number theory; congruences; residues; reciprocity law; Diophantine equations.
- 411. Numerical Methods.** (3:3:0) Prerequisites: Comput. Sci. 130 and Math. 214 or 244. Recommended: Math. 322 or 372 or 385.  
Interpolation; approximation; differentiation; integration; ordinary differential equations; and systems of equations, linear and nonlinear.
- 434. Introduction to Ordinary Differential Equations.** (3:3:0) Home Study also. Prerequisite: Math. 214 or 244.  
Methods and theory of ordinary differential equations.
- 436. Introduction to Partial Differential Equations.** (3:3:0) Prerequisite: Math. 321 or 434.  
Methods for solving the wave, heat, and Laplace equations; eigenvalue problems and Fourier series.
- 451. Modern Geometry I.** (3:3:0) Prerequisite: Math. 301 or 371.  
Synthetic and analytic projective geometry; affine and Euclidean geometry. Geometry by invariants of groups of transformations.
- 452. Modern Geometry II.** (3:3:0) Prerequisite: Math. 451.  
Relationships of geometry to algebra, supplemental design, and combinatorial mathematics.
- 501. Real Numbers.** (3:3:0) Prerequisite: Math. 371. Recommended: Math 541.  
Extensive examination of various axiomatic descriptions of the real numbers and the interrelationships among these descriptions. Offered on demand.
- 502. Set Theory.** (3:3:0) Prerequisite: Math. 371.  
Zermelo-Fraenkel axioms for set theory; the axiom of choice; ordinal and cardinal numbers; algebra of sets. Offered on demand.
- 508. Mathematical Logic.** (3:3:0) Prerequisite: Math. 371 or 541.  
Propositional and first-order predicate calculi; set theories; well-ordering; transfinite induction.
- 512. Introduction to Numerical Analysis.** (3:3:0) Prerequisite: Math. 411.  
Theory of constructive methods in mathematical analysis.
- 513R. Advanced Topics in Applied Mathematics.** (3:3:0 ea.) Prerequisite: consent of instructor. Offered on demand.
- 541, 542. Introduction to Real Analysis.** (3:3:0 ea.) Prerequisite: Math. 244 or 315.  
A rigorous treatment of continuity, differentiability, integration of functions of real variables, and infinite series.
- 551, 552. Introduction to Topology.** (3:3:0 ea.) Prerequisite: completion of or concurrent registration in Math. 541.  
Axiomatic treatment of linearly ordered spaces, metric spaces, arcs and Jordan curves, types of connectedness.

- 585. Matrix Analysis.** (3:3:0) Prerequisite: Math. 322, 372, or 385.  
Characteristic values, canonical forms, and functions of matrices, with applications.
- 629. Teaching Mathematics in Secondary Schools.** (3:3:0)  
Offered on demand.
- 631, 632. Complex Analysis.** (3:3:0 ea.) Prerequisites: Math. 332 and 542.  
Offered on demand.
- 634, 635. Theory of Ordinary Differential Equations.** (3:3:0 ea.) Prerequisites: Math. 434 and 542.  
Offered on demand.
- 641, 642. Functions of a Real Variable.** (3:3:0 ea.) Prerequisite: Math. 542.
- 643R. Special Topics in Analysis.** (3:3:0 ea.) Prerequisites: Math. 541, 542.  
Topics selected from continued fractions, stochastic processes, generalized functions, etc.
- 645. Tensor Analysis.** (3:3:0) Prerequisite: Math. 244 or 542.  
Offered on demand.
- 647, 648. Theory of Partial Differential Equations.** (3:3:0 ea.) Prerequisites: Math. 436 and 542.  
Offered on demand.
- 651, 652. General Topology I, II.** (3:3:0 ea.) Prerequisite: consent of instructor.
- 653R. Special Topics in Geometry.** (3:3:0 ea.) Prerequisites: Math. 372 and 452.  
Topics from n-dimensional projective and algebraic geometry, foundations, transformations, curves and surfaces, forms and sheaf theory.
- 655R. Advanced Special Topics in Topology.** (3:3:0 ea.) Prerequisite: consent of instructor.  
Offered on demand.
- 661, 662. Functional Analysis.** (3:3:0 ea.) Prerequisite: Math 632 or 642.  
Offered on demand.
- 671, 672. Modern Algebra.** (3:3:0 ea.) Prerequisites: Math. 371 and 372.
- 675R. Special Topics in Algebra.** (3:3:0 ea.) Prerequisite: Math. 671.  
Group theory; commutative algebra; homological algebra; ring theory; algebraic number theory.
- 681. Linear Algebra.** (3:3:0) Prerequisites: Math. 371, 372.  
Offered on demand.
- 695. Readings in Mathematics.** (1-2:1-2:0)  
Offered on demand.
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Microbiology

**Professors:** Beck, Bodily, Donaldson (chairman, 775 WIDB), Larsen, North, Sagers (graduate coordinator, 751 WIDB).

**Associate Professors:** Bradshaw, Burton, Jensen, Wright.

**Assistant Professor:** Johnson.

**Collaborator:** Bolick.

**Programs:** Master of Science (M.S.), Doctor of Philosophy (Ph.D.).

**Entrance Examinations Required:** None.



**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Science

**Prerequisites:** Adequate preparation for graduate work in the Department of Microbiology presupposes satisfactory training in the physical and biological sciences. If a student is deficient in foundation courses, opportunity will be given after entering Graduate School to correct these deficiencies; however, such a student will not be able to receive the advanced degrees in the minimum time required of more qualified candidates.

**Fields:** Genetics, medical technology, microbiology.

**Minors Permissible:** Any approved biological or physical science minor; Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** Micro. 331, 501, 511, 531, 551, 581, 691R, 699; one year of inorganic college chemistry; one semester of quantitative analysis; Chem. 351, 352, 353, 581, 584; Physics 201 and 202; and Math 111. Many of these courses would normally be taken during a student's undergraduate training.

**Medical Technology Field:** A nonthesis M.S. degree program is offered to certified medical technologists by the Department of Microbiology.

### Doctor of Philosophy

**Prerequisites:** Master's degree in a biological or physical science.

**Fields:** Genetics, microbiology.

**Minors Permissible:** Any approved minor in biological or physical science.

**Requirements:** Minimum of 24 semester hours plus dissertation (18-hr. min.—799). Prior to selection of a dissertation subject and assignment to a research adviser, the student must pass a written qualifying examination in the following areas: (1) general microbiology, (2) pathogenic microbiology, (3) immunology, (4) virology, (5) bacterial physiology, and (6) microbial genetics. This examination will normally be given after one year of graduate study. It may be waived if the student has received the master's degree in microbiology at Brigham Young University. The courses and number of credit hours required for the Ph.D. degree will be determined by the advisory committee based upon the level of previous academic preparation of the student and his specific interests.

A student must pass a comprehensive written and oral examination prior to admission to candidacy for the Ph.D. degree. This examination will be taken not earlier than two semesters after completion of the qualifying examination. Prior to taking the comprehensive examination the student must have satisfied the language tool requirements and completed courses in differential and integral calculus, Chemistry 461 and 462, and Micro. 641 and 661.

**Required Courses:** All classes required for a master's degree in microbiology, as listed above, plus differential and integral calculus, Chemistry 461 and 462, Micro. 641 and 661.

### Courses

**501. Pathogenic Microbiology.** (5:3:6) Prerequisite: Micro. 331 or consent of instructor.

Characteristics of pathogenic microorganisms—their isolation and identification.

**511. Immunology.** (4:2:6) Prerequisite: Micro. 501 or consent of instructor.

- 521. Industrial Microbiology.** (2:2:0) (m) Prerequisites: Micro. 331 and bio-chemistry.
- 522. Industrial Microbiology Laboratory.** (1:0:3) Prerequisite: completion of or concurrent registration in Micro. 521.
- 531. Virology.** (4:2:6) Prerequisite: Micro. 501 or 511.
- 551. Advanced Microbiology.** (5:3:6) (m) Prerequisites: Chem. 581 and 584 or consent of instructor.
- 581. History of Microbiology.** (1:1:0) Prerequisite: senior or graduate status.
- 601. Pathogenesis of Infectious Disease.** (2:2:0) Prerequisites: Micro. 511 and consent of instructor.
- 611. Advanced Immunology.** (2:2:0) Prerequisite: Micro. 511.
- 631. Advanced Virology.** (2:2:0) Prerequisites: Micro. 531; Chem. 581 or equivalent.
- 632. Cell and Tissue Culture Techniques.** (2:0:6) Prerequisites: Micro. 531; Chem. 581 or equivalent.  
Advanced techniques utilized in cell and tissue culture procedures.
- 641. Radioactive Tracer Techniques in Biology.** (3:1:6) (m) Prerequisites: Physics 202 and consent of instructor.
- 651. Special Topics in Microbiology.** (2:2:0)
- 661. Microbial Genetics.** (4:2:6) Prerequisites: Micro. 331, a course in general genetics, Chem. 581 or equivalent.  
Molecular bases of genetics of bacteria and bacteriophages, including mechanisms of DNA transfer, uptake, recombination, replication, and mutation.
- 671. Clinical Correlation.** (2:1:3) (m) Bolick  
Correlation of laboratory data with the diagnosis, pathogenesis, course, and treatment of disease.
- 691R. Graduate Seminar.** (1:1:0 ea.)
- 695R. Research.** (1-5:Arr.:Arr. ea.)
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)
- 799. Dissertation for the Ph.D. Degree.** (Arr.)

## Music

**Professors:** Bradshaw (composer-in-residence), Davis, Earl (graduate coordinator, E-556 HFAC), Goodman (chairman, C-550-D HFAC), Halliday, H. Laycock, R. Laycock, Mason, Nibley, Nordgren, Sardoni, Woodward.

**Associate Professors:** Gibbons, Keeler, Manookin, Stubbs, Williams.

**Assistant Professors:** Belnap, Dalton, Foxley, Longhurst, Mathiesen, Randall, Robison, Unswerth.

**Programs:** Master of Music (M.M.), Master of Arts (M.A.), Doctor of Philosophy (Ph.D.).

### Entrance Examinations Required:

1. Music Department Graduate Entrance Examination: presupposes the information and skills of two years of music theory and one year of music history. Given on the day preceding each registration (excluding Sunday).

2. Graduate Entrance Audition: for majors or minors in applied music.
3. Graduate Record Examination—Music Supplement: required of doctoral students only.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Fall Semester and Summer Term only.

### **Master of Music**

**Prerequisite:** A bachelor's degree in music performance or the equivalent. Grade-point average for undergraduate music classes must be B (3.0) or better.

**Field:** Applied music.

**Minors Permissible:** Option II only.

**Requirements:** Minimum of 32 semester hours, a scholarly paper, and a recital.

**Required Courses:** Music 566A,B, 567A,B (4 hours beyond bachelor's degree program); 613, 635; 660R (each semester); 693, 697R; any two classes from 638, 639, or 640; and 3 to 7 hours of electives.

This degree program is for qualified students whose interests lie principally in performance.

### **Master of Arts**

**Prerequisite:** A bachelor's degree in music in respective majors or the equivalent. Grade-point average for undergraduate music classes must be B (3.0) or better.

**Fields:** Music education, musicology, music theory.\*

**Minors Permissible:** Option I or Option II.

**Requirements:**

**Option I:** Minimum of 29 semester hours (including Music 635 and 693), plus thesis (6-hr. min.—699).

**Option II:** Minimum of 24 semester hours plus thesis (6-hr. min.—698 or 699).

**Required Courses:**

Music Education: Music 605, 610, 612, 613, 635, 693, 699.

Musicology: Music 613, 635, 693, 699, and any 12 (Option II) or 15 (Option I) hours from the following classes: 636, 637, 638, 639, 640, 675.

Music Theory: Music 613, 635, 673, 675, 686, 693, 698, or 699.

\*A student majoring in music theory who has had substantial experience in composition may, with the permission of the Music Department graduate faculty, submit a major composition to fulfill the thesis requirement for the Master of Arts degree.

The Master of Arts degrees are in preparation for (1) further study and research at the doctoral level; (2) teaching and/or supervision at the elementary, secondary, and junior college levels, and in private studios; (3) performance and composition; (4) background in many related fields, such as community recreation, therapy, church music, merchandising, broadcasting, and music criticism.

### **Doctor of Philosophy**

**Prerequisite:** A master's degree in music or the equivalent.

**Fields:** Music education, musicology, music theory.

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 68 semester hours plus dissertation (18-hr. min.).

**Required Courses:** Music 605, 613, 635, 693, 699 (or 697 and 698), 754, 785; 794A,B; 799; and any 15 hours from the following: 636, 637, 638, 639, 640, 675.

The Doctor of Philosophy degree is in preparation for administration; junior college, college, university, or conservatory teaching; research; or composition.

### Courses

- 537. Music for Elementary School Teachers.** (2:2:0) Prerequisites: Music 345 or elementary teaching experience. Davis  
Experience in teaching various music activities in the elementary school.
- 565R. Pedagogy.** (2:2:0) Prerequisite: advanced standing in performance.  
Comprehensive study of performance pedagogy for major instrument or voice.
- 566A,B; 567A,B. Applied Music Literature.** (2:2:0 ea.) Prerequisite: senior standing as a performance music major.  
Intensive study of literature for the major instrument. Taken by senior and graduate students in performance, with sections for voice, piano, and organ.
- 587, 588. Composition.** (3:3:0 ea.) Bradshaw, Manookin
- 601. Music in the Elementary School.** (2:2:0) Prerequisites: Music 345 and the equivalent of an elementary education teaching minor in music.  
Davis, Groesbeck
- 603. Music in the Junior High School.** (2:2:0) Prerequisite: Music 601. Davis
- 605. Influence of Music on Behavior.** (3:3:0) Prerequisite: general psychology, sociology, or equivalent. Goodman, Mason
- 610. Supervision and Administration of Music in the Public Schools.** (2:2:0) Goodman, Mason
- 612. Music Education in Society.** (3:3:0) Prerequisites: Music 484, 485, or equivalent. Davis, Goodman
- 613. Basic Concepts in Music Education.** (2:2:0) Davis, Goodman  
Required of all candidates for graduate music degrees.
- 615. Vocal Methods, Materials, and Resources.** (2:2:0) Prerequisite: Music 479 or equivalent. Halliday, Woodward
- 616. Instrumental Methods, Materials, and Resources.** (2:2:0) Prerequisite: Music 479 or equivalent. Goodman
- 620. Advanced Instrumental Conducting.** (2:3:3) Prerequisites: Music 374, 375, 485, or equivalent. R. Laycock, Sardoni
- 621. Advanced Choral Conducting.** (2:3:3) Prerequisites: Music 166, 364, 374, 375, 485, or equivalent. Halliday, Woodward
- 625R. Summer Music Clinic.** (1-2:4:4 ea.) (Two weeks during clinic)  
May be counted as either music education or applied music.
- 630R. Special Lectures in Music Education.** (1-5:Arr.:Arr. ea.) Prerequisite: certification in music plus teaching experience.
- 635. Musical Research Techniques.** (3:3:0) Prerequisite: graduate standing or consent of instructor. Earl  
Required of all candidates for graduate music degrees. Should be taken in first semester of graduate work.



636. **Music in the Middle Ages.** (3:3:1) Prerequisites: Music 484, 485, or equivalent.
637. **Music in the Renaissance.** (3:3:0) Prerequisites: Music 484, 485, or equivalent.
638. **Music in the Baroque Era.** (3:3:0) Prerequisites: Music 484, 485, or equivalent.
639. **Music in the Classic Period.** (3:3:0) Prerequisites: Music 484, 485, or equivalent.
640. **Music in the Romantic Period.** (3:3:1) Prerequisites: Music 484, 485, or equivalent.
641. **Special Lectures in Musicology.** (2:2:0) Prerequisites: Music 484, 485, or equivalent.
- 648R. **Collegium Musicum.** (1:0:3 ea.) Prerequisite: consent of director.  
Practical experience in designing programs, outlining music, and preparing program notes for music from the medieval to modern times.
652. **History of Notation and Paleography.** (3:3:0) Prerequisites: Music 484, 485, 636, or equivalent. Offered 1973-74 and alternate years.
656. **Hymnology.** (2:2:0) Prerequisites: Music 484, 485, or equivalent. Earl  
Offered 1974-75 and alternate years.
- 660R. **Graduate Applied Instruction.** (2:1:0 ea.) Prerequisite: completion of undergraduate applied proficiency requirements and audition.  
Fifteen 45-minute lessons per semester. Three hours of practice required per day. Special fee. (For instructors see Music 159R.)
663. **Solo Recital.** (2:1:0) Williams  
One period per week with private teachers, 2-3 hours per day, plus public performance of the recital. Required of all graduate students minoring in performance. Special fee.
673. **Advanced Problems in Musical Structure.** (3:3:0) Prerequisites: Music 472, 491. Bradshaw, Manookin
675. **Music of the Contemporary Period.** (3:3:0) Prerequisites: Music 484, 485, or equivalent. Bradshaw, Manookin  
A survey of twentieth-century music, including its relationship to the past and its sociological, psychological, and philosophical implications for the present day.
686. **Pedagogy of Music Theory.** (3:3:0) Nordgren
- 687, 688. **Composition.** (3:3:0 ea.) Prerequisite: Music 588 or equivalent. Bradshaw, Manookin
693. **Proseminar in Music.** (2:2:0) Prerequisites: Music 484, 485, and 635, or equivalent, and approval of advisory committee.  
Davis, Earl, H. Laycock, Mason  
Required of all candidates for graduate music degrees.
- 694A,B. **Independent Readings.** (2:0:6 ea.) Prerequisite: Music 693 or equivalent.
- 697R. **Recital for Master of Music Degree.** (4:Arr.:Arr. ea.) Prerequisites: approval of advisory committee and graduate music faculty.  
Required of all Master of Music degree candidates. Includes the preparation of a public recital and a research paper on specific aspects of the recital. Special fee.
698. **Composition for Master's Degree.** (2-6:Arr.:Arr.) Prerequisite: approval of the Music Department graduate faculty based upon evidence of ability in composition as manifested in a preliminary work. Bradshaw

- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.) Prerequisite: approval of the Music Department graduate faculty.  
Candidates for the master's degree are required to show competence in writing and research before work is begun on the thesis.
- 753. Advanced Problems in Notation.** (3:3:0) Prerequisite: Music 652.  
Offered same year as Music 652.
- 754. History of Musical Instruments.** (3:3:0) Prerequisites: Music 484, 485 or equivalent. Williams  
Offered 1974-75 and alternate years.
- 785. Historical Aspects of Music Theory.** (3:3:0) Nordgren  
Offered 1974-75 and alternate years.
- 794A,B,C,D. Seminar in Music.** (3:3:0 ea.) Prerequisites: Music 635, 693, or equivalent, and approval of graduate advisory committee. Davis, Earl, H. Laycock
- 799. Dissertation for Ph.D. Degree.** (Arr.) Prerequisite: approval of graduate advisory faculty.

## Organizational Behavior

**Professors:** Dyer (chairman, 265 JKBA), Dalton, Moffitt, Daniels (Psychology).  
**Associate Professors:** Covey, Ritchie, Thompson.  
**Assistant Professors:** Cherrington, Wright (Political Science).

**Program:** Master of Arts (M.A.).

**Entrance Examination Required:** An oral screening examination by members of the faculty and a team of current graduate students. If a candidate lives a considerable distance from Provo, he may make special arrangements with the chairman for a different screening program.

**Application Consideration Dates:** March 15.

**Entry Times:** Fall Semester.

### Master of Arts

**Prerequisites:** Training in research methods, statistics, psychology, sociology, business management, political science, or related fields. Previous work and business experience are also desired.

**Field:** Organizational behavior.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 45 semester hours, an internship, plus a research report. Program requires four full-time semesters.

**Required Courses:** Org. Behav. 640, 672, 679, 680, 689R.

The Department of Organizational Behavior has as a major objective the development of persons who will be working in organizations as professionals in the areas of organization research and development, management training and development, personnel management, or industrial relations, or who will seek careers in teaching or research in the fields in organizational behavior.

### Courses

- 522. Management Development II: Case Histories and Practicum in Interpersonal Relations.** (3:3:0) Prerequisite: Org. Behav. 321. Covey  
Application of skills in problem diagnosis, empathy, and communications

in two-person settings—cases, individual student commitment, and involvement.

523. **Leadership in Organizations: Case Histories and Practicum.** (3:3:0) Prerequisite: Org. Behav. 321. Covey  
Solution of "live" leadership problems from students' experiences through the use of skills, leadership theory, and disciplines.
606. **Organizational Behavior and Administration.** (3:3:0) (m) S. Covey, Thompson, Wright  
Current theories of organization and how administrators and managers can develop and improve organizational functioning.
610. **Management Development: Philosophy and Personal Style.** (3:2:2) Daniels, Dyer, Moffitt  
A laboratory experience designed to help the potential manager develop a philosophy of management and improve his personal management style.
640. **Behavioral Approaches to Organizational Processes and Structures.** (3:3:0) (m) Prerequisite: Org. Behav. 321 or equivalent, or consent of instructor. Ritchie, Wright  
Review of concepts and research findings from psychology, social psychology, sociology, and cultural anthropology used in understanding behavior and implications in organizations.
650. **Research Methods in Organizational Diagnosis and Evaluation.** (3:3:0) (m) Prerequisites: two courses in statistics and/or research methods; or consent of instructor. Cherrington, Dalton  
Adaptation of behavioral science research methods to problems of organizational development as applied to evaluation and action research strategies.
- 660R. **Advanced Seminar in Organizational Behavior.** (2:2:0 ea.) Prerequisite: consent of instructor. Dalton, Ritchie, Thompson  
Focus on topics and problems varies each semester. Examples are conflict, resolution, power and influence, intergroup relations.
669. **Readings in Organizational Behavior.** (1-3:0:0)  
A reading and discussion course, with direction from a faculty member in areas of the student's interest.
670. **The Dynamics of Organization Change: Interventions and Strategies.** (3:3:0) Prerequisite: Org. Behav. 640 or equivalent. Dyer  
Examination of forces operating to induce or resist change, and the strategy and tactics of change.
672. **The Consultative Process.** (3:3:0) Prerequisites: Org. Behav. 640, 670, or equivalent; or consent of instructor. Dyer, Moffitt  
Concentration on third-party role in group development, educational process, conflict resolution, and intervention strategies.
675. **Theory and Method of Laboratory Training.** (3:2:2) Prerequisites: Sociol.-Psych. 357; Org. Behav. 640, 670, or equivalent; or consent of instructor. Daniels, Dyer, Moffitt  
Study of research findings from studies of behavior modification to particular problems in training behavioral skills.
679. **Practicum in Organizational Development.** (6-9:2:28) Prerequisite: consent of instructor and advisory committee. Dalton, Moffitt  
One semester in an organization on a development project under the supervision of a faculty member and professional person within the organization.
680. **Organization Behavior Research Report.** (3:2:2) Prerequisite: consent of instructor.  
Special research projects in organizations focusing on group structure functions, leadership, and the control to increase group effectiveness.

- 689R. Professional Development Seminar.** (2:0:4) Prerequisite: consent of instructor and advisory committee. Cherrington, Ritchie  
Integration and synthesizing of learning experiences through participation on a learning team.

## Philosophy

**Professors:** Madsen, Riddle, Yarn.

**Associate Professor:** Carter, Rasmussen, Warner.

**Assistant Professors:** Reynolds (chairman, 73 JSB).

### Minor Only

**Prerequisites:** Lower-division courses prerequisite to those chosen for the minor.

**Requirements:** For master's level, 9 semester hours; for doctoral level, 15 semester hours.

**Required Courses:** Those specified by philosophy representative on the student's advisory committee.

### Courses

**305. Intermediate Logic.** (3:3:0)

Natural deduction, the paradoxes, reduction of arithmetic to logic, Godel's proofs. Special attention is given to philosophical issues connected with these formal topics.

**311. Philosophy of Language.** (3:3:0)

Theories of meaning; interrelationships of words with their senses, their referents, their language and its users; actions that can be performed using language.

**312. Philosophy of Mind.** (3:3:0)

Philosophical examination of selected problems such as the relationship of mind and brain, the self and self-knowledge, and human action and free agency.

**315. Philosophy of Religion.** (3:3:0)

Analysis of problems in religion, including existence and nature of God, alternatives to theism, God's foreknowledge and man's free will, immortality, and religious experience and language.

**352. Aesthetics.** (3:3:0)

Philosophical examination of man's experience of beauty in nature, literature, and the fine arts, with special emphasis upon the relationship between beauty and truth.

**354. Philosophy of the Natural Sciences.** (3:3:0)

Analysis of induction; assumptions underlying scientific inquiry; the structure of scientific explanation; mechanism; teleology; and the nature of scientific facts, laws, and theories.

**355. Philosophy of the Behavioral and Social Sciences.** (3:3:0)

Analysis of: assumptions underlying the theories and methods of social science; explanation in sociology, psychology, and history; models of man; and free will and determinism.

**371R. Topics in Philosophy.** (2-5:2-5:0 ea.)

Intensive analysis of a selected problem in philosophy as announced each semester in the class schedule.

**372R. Figures in Philosophy.** (2-5:2-5:0 ea.)

Intensive reading of the works of a major philosopher, as announced each semester in the class schedule.



**373R. Historical Movements in Philosophy.** (2-5:2-5:0 ea.)

Study of a particular movement or school in philosophy, as announced each semester in the class schedule.

**448R. Readings in Philosophy.** (1-4:1-4:0 ea.)**501R. Graduate Seminar.** (2-5:2-5:0 ea.)

Intensive analysis of a selected topic, figure, or movement in philosophy, as announced each semester in the class schedule.

**505. Logic and the Philosophy of Mathematics.** (4:3:0) Prerequisite: Phil. 205 or consent of instructor.

Philosophical issues in logic, including: formal theories and definitions, limitations of the axiomatic method, and logic and set theory in the foundations of mathematics.

**648R. Directed Readings in Philosophy.** (1-4:1-4:0 ea.)

## Physical Education

**Professors:** Allsen, Bangert, Call, Hartvigsen, Holbrook, Jarman, C. Jensen, Roundy (chairman, 270 SFH), Shaw (graduate coordinator, 221-F RB).

**Associate Professors:** Fisher, Jacobson, Johnson, Jones, Watts.

**Assistant Professors:** Barker, Bestor, Francis, Harrison, McGown, Rasmus.

**Programs:** Master of Arts (M.A.), Master of Science (M.S.), Doctor of Education (Ed.D.).

**Entrance Examinations Required:** For the doctoral program, the qualitative and quantitative sections of the Graduate Record Examination.

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** A bachelor's degree with a major in physical education involving knowledge and competencies equivalent to those required in the undergraduate major program at Brigham Young University. Competency examinations in skill, fitness, and knowledge will be administered to entering graduate students. Students will be counseled to strengthen any areas of weakness identified in the examinations.

**Fields:** Analysis of human motions, professional leadership.

**Minors Permissible:** Option I.

**Requirements:**

1. With no project, 36 semester hours.
2. With a project, 24 semester hours plus project (6 semester hours).

**Required Courses:**

1. With no project, 12 hours as follows: P.E. 692; one of the following: P.E. 662, 661, or 640; three of the following: P.E. 547, 642, 645, or 648; one of the following: P.E. 601, 610, or 670.
2. With a project, P.E. 692.

### Doctor of Education

**Prerequisites:** Two years of successful professional experience.

**Fields:** Analysis of human motions, professional leadership.

**Minors Permissible:** Any approved minor.

**Requirements:** Minimum of 75 semester hours plus a dissertation (12-hr. min.—799).

**Required Courses:**

1. Graduate education area (15 semester hours).
2. Scientific core (18 semester hours): P.E. 547, 631, 635, 642, 645, 646, 647, 648, 692; Administration core (22 semester hours): P.E. 601, 610, 635, 640, 661, 662, 663, 670, 673, 780.
3. Minor area (10-14 semester hours).
4. Electives (20 or more hours in physical education or related areas).

**Courses**

- 547. Advanced Corrective Physical Education.** (2:2:1) Prerequisite: P.E. 446. Call Techniques of postural evaluation, muscle testing, therapeutic exercises, and relaxation; extent and limitations of the physical educator's responsibility for recognition of divergent conditions and referral procedures.
- 570. Teaching Progression in Individual Sports.** (2:4:0) Jones, Valentine  
Materials, methods, and teaching progression in individual sports, including archery, badminton, bowling, tennis, and golf.
- 571. Teaching Progression in Team Sports.** (2:2:2) Jones, Hirst  
Materials, methods, and teaching progression in team sports.
- 575. Materials and Methods for Secondary Teachers.** (2:1:2) Hirst
- 576R. Workshop in Fitness and Sport.** (1-4:Arr.:Arr.) Prerequisite: undergraduate major in physical education or equivalent. Jacobson, Roundy  
Designed to give physical education teachers an experience in fitness and sport that will upgrade their skill, knowledge, and competence.
- 587. Modern Dance Composition, Advanced.** (1:0:4)  
Advanced principles of composition, including elements of space, motion, energy, and time.
- 588. Modern Dance Performing Techniques.** (2:0:6) Prerequisites: P.E. 382, 385.  
Advanced techniques, with combinations of movement and pattern to further dance as a performing art.
- 589A,B,C. Workshop in Modern Dance.** (1-2:Arr.:0 ea.)
- 601. Problems in Physical Education.** (2:3:0) Bangerter  
Identification and interpretation of the nine generalized problems in physical education.
- 610. Philosophy of Physical Education.** (2:2:0) Holbrook  
Interpretations, beliefs, and concepts underlying the profession of physical education.
- 631. Problems in Athletic Conditioning.** (2:2:4) Jensen  
Application of scientific principles to problems in athletic conditioning.
- 633. Physical Education for the Mentally Retarded.** (2:2:0) Prerequisite: bachelor's degree in physical education. Call  
Theory, concepts, and programs in physical education for trainable and educable mentally retarded.
- 635. Research Design in Physical Education.** (2:2:1) Prerequisites: P.E. 464 and Stat. 321 or equivalent.
- 640. Curriculum Construction in Physical Education.** (2:2:0) Hart  
Curriculum problems for elementary, secondary, and college physical education programs.

642. **Mechanical Analysis of Activities.** (2:2:0) Johnson  
Analysis of the mechanics of movement in various activities to develop the highest degree of skill.
645. **Functional Anatomy and Kinesiology.** (2:2:0) Prerequisites: Zool. 105, 261, 262; P.E. 341, 344, 446, 449, or equivalent. Call  
Functional applied anatomy and kinesiology for physical education students.
646. **Laboratory Methods and Procedures.** (2:2:0) Prerequisites: P.E. 341 and 344 and concurrent enrollment in 674. Fisher  
Basic techniques and procedures used in human performance laboratories.
647. **Advanced Physiology of Activity.** (2:2:0) Prerequisites: P.E. 341, 344. Fisher  
Adjustments made by the body to physiological stress.
648. **Theory of Motor Learning.** (2:2:0) McGown  
Theories and methods of learning physical skills.
661. **Supervision in Physical Education.** (2:2:0) Jarman  
A consideration of the theory and practice upon which successful supervision in P.E. is based.
662. **Administration and Public Relations.** (3:3:0) Hartvigsen  
Administrative and public relations problems at all school levels: local, state, and national.
663. **Planning Facilities.** (2:2:0) Kimball  
Basic planning for facilities for school and community physical education and recreation programs.
670. **History of Physical Education.** (3:3:0) Holbrook  
History of physical education from ancient civilization to the present day.
673. **Physical Education in the Elementary School.** (2:3:0) Holbrook  
Curricular interrelationships, and content materials in accomplishing educational results. For teachers, administrators, and supervisors.
- 674A,B,C. **Workshop in Physical Education in the Elementary Schools.** (1:combination of 40 hrs. ea.)  
Materials, methods, and teaching progression in physical education for the elementary school. Offered on demand.
691. **Graduate Admission Seminar.** (1:2:0) Prerequisite: provisional acceptance in the Ed.D. program. Allsen, Roundy  
Evaluation of the student's aptitudes, leadership qualities, and ability to successfully complete an Ed.D. program in physical education.
692. **Research Methods in Physical Education.** (3:3:0) Roundy
694. **Individual Study.** (2:1:1) Holbrook  
Readings from recently published professional literature.
698. **Field Project, Master's Degree.** (1-6:0:Arr.) Roundy
699. **Thesis for Master's Degree.** (6-9:Arr.:Arr.) Roundy
780. **Professional Preparation.** (2:2:0) Prerequisites: completion of graduate courses, and experience in college instruction and teacher education. Holbrook, Roundy  
Program for preparation of professional physical educators at the undergraduate and graduate levels.
- 797R. **Individual Research in Physical Education.** (2-6:Arr.:Arr. ea.) Prerequisites: undergraduate major in physical education; matriculation for graduate study in the department Roundy

799. Dissertation for the Ed.D. Degree. (12:Arr.:Arr.)

## Physics and Astronomy

**Professors:** Ballif, Barnett (graduate coordinator, 187 ESC), Bass, Decker, Dibble, Dixon, Dudley, Eastmond, Fletcher (emeritus), A. Gardner, J. Gardner, Hales (emeritus), Harrison (chairman, 296 ESC), A. Hill, M. Hill, McNamara, Merrill, Nelson, Vanfleet.

**Associate Professors:** Hansen, Jensen, Jones, Larson, Palmer, Strong.

**Assistant Professors:** Christensen, Evenson, Hatch, Mason, Rasband, Woodford.

**Programs:** Master of Arts (M.A.), Master of Science (M.S.), Doctor of Philosophy (Ph.D.).

**Prerequisites for the Ph.D. Degree:** satisfactory completion of the following courses or their equivalents: Physics 121, 122, 221, 222, 316, 317, 318, 321, 322, 341, 342, 431, 471, 551, 552, and Math. 214, 434.

**Prerequisites for the M.S. Degree:** satisfactory completion of the following courses or their equivalent. Physics 121, 122, 221, 222, 316, 317, 318, 321, 322, 341, 342, and Math. 214, 434.

**Prerequisites for the M.A. Degree:** satisfactory completion of the following courses or their equivalents: Physics 121, 122, 221, 222, 300, 316, 317, 321, 322 (or 341 and 386), and Math. 214, 434.

Any deficiencies in formal course work at the undergraduate level will be considered at registration time, and an appropriate program for removing these deficiencies will be developed by the student and his sponsor or adviser.

**Special Examinations Required:** Graduate Record Examination scores (both aptitude and advanced physics) are required of all applicants for admission.

**Application Consideration Dates:** Same as Graduate School deadlines. Applications should be submitted early (April 1, for fall registration) for prime consideration relative to scholarships or teaching assistantships.

**Entry Times:** Any regular registration.

### Master of Arts

**Field:** Physics teaching emphasis.

**Minors Permissible:** Education or Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** None. (This program differs from the M.S. program in its prerequisites.)

**M.A.-3 Program:** One mode of completing the M.A. degree is an M.A.-3 program for secondary and junior college teachers. This must begin in the junior year and leads to both B.A. and M.A. degrees in physics as well as teacher certification. Prerequisites to this three-year program are Math. 111, 112 and the general education requirements for other than physical sciences and mathematics. A typical M.A.—3 program follows:

Junior Year: Chem. 105; Ed. 301B; Math. 113, 214, 301, 302, 371, 434; Physics 211, 213, 214, 317.

Senior Year: Ed. 310, 403, 415; Health 362; Physics 222, 300, 316, 318, 321, 511; Phys. Sci. 377, 479.

Graduate Year: Physics 341, 386, 551, 552, another two-semester physics series, 699.

Suggested Minors: Math. 387, 501, 502; or Ed. 640, 642, 644R.



### Master of Science

**Fields:** Acoustics, astrophysics, atomic physics and spectroscopy, biophysics, nuclear physics, planetary and space physics, plasma physics, solid-state physics, theoretical physics.

**Minors Permissible:** Recommended minor in mathematical physics, which may be satisfied with Physics 517, 518, and 621; also Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr. min.—699).

**Required Courses:** None.

The Master of Science degree often is sought by those who intend to continue on for the Ph.D. degree, but it also serves as a terminal degree for many who intend to work in industrial or governmental research or teaching. Those intending to enter research can maintain breadth or obtain some degree of specialization by selecting appropriate graduate or undergraduate courses where this can be done in conformity with the regulations of the Graduate School.

### Doctor of Philosophy

**Degrees:** Two degrees are offered: physics and also physics and astronomy.

**Prerequisites:** Courses to satisfy the language requirements. Students may fulfill the language requirement under option III as described under the general University requirements for the Ph.D. degree. If this option is selected the student must present A or B grades in Comput. Sci. 131 and 6 hours selected from Physics 617, 618; Math. 371, 411, 512, 645, 647, 648. (These courses must be in addition to courses used to fulfill course work requirements listed under "Required Courses.")

**Fields:** Acoustics, astrophysics, atomic physics and spectroscopy, biophysics, nuclear physics, planetary and space physics, plasma physics, solid-state physics, theoretical physics.

**Minors Permissible:** See "Required Courses" below.

#### Requirements:

1. Minimum of 48 hours in approved formal course work, exclusive of graduate seminars (see course 591R), plus dissertation (18-hr. min.—799).
2. Successful completion of comprehensive written examinations covering the required courses listed below and an oral examination covering the two general fields selected under fields listed below (see under "Required Courses"). Normally these examinations will be taken toward the end of the second year.
3. Before admission to candidacy, tentative acceptance as a research student by a member of the faculty of the Department of Physics and Astronomy.

**Required Courses:** Physics degree: 517, 518, 621, 641, 642, 651, 652; physics and astronomy degree: 517, 518, 527, 528, 621, 651, 652. A graduate seminar each semester of residence. At least 12 credit hours in that field listed below which is most closely related to the field of the student's research to constitute a major and 12 credit hours in a second field to constitute a minor. No duplication between these courses and those listed above is permitted.

1. Acoustics: Physics 561, 562, 565R, 566R, 623, 631, 681.
2. Astrophysics: Physics 527, 528, 529, 611, 612, 627, 628, 671, 711R.
3. Atomic physics and spectroscopy: Physics 527, 528, 631, 632, 671, 672, 711R.
4. Nuclear physics: Physics 555, 631, 655, 656, 681, 751, 752, 711R.
5. Plasma physics: Physics 536, 537, 623, 631, 632, 645, 646, 711R.
6. Solid-state physics: Physics 623, 631, 681, 682, 711R.
7. Theoretical physics: Physics 617, 618, 625, 626, 632, 751, 752, 711R.

8. Planetary and space physics: Physics 536, 537, 631, 645, 646, 671, 672, 711R.
9. Physics group for physics and astronomy degree only: Physics 536, 537, 625, 626, 645, 646, 655, 656, 711R (6 hrs.); 631, 632, 641, 642 (6 hrs.).

The student whose research is in acoustics or biophysics may, with the approval of his committee, construct a 12-hour major or minor which includes courses outside the department.

### Courses

- 300. Philosophical Foundations of Modern Physics.** (3:3:0) Prerequisite: Physics 221 or equivalent.  
An examination of the origin, content, and philosophical significance of basic concepts in physics.
- 316. Atomic and Nuclear Physics Laboratory.** (1:0:3) Prerequisite: completion of or concurrent registration in Physics 222.
- 317, 318. Elementary Methods in Theoretical Physics.** (3:3:0 ea.)  
Formal procedures in theoretical physics; applications of linear algebra, vector analysis, complex analysis, Fourier techniques, etc., to the classical equations of physics.
- 321, 322. Mechanics.** (4:4:0 ea.) Prerequisite: Physics 317.  
Newton's laws applied to particles and systems of particles, including rigid bodies. Conservation principles, Lagrange's equations, Hamilton's equations, and special relativity.
- 341, 342. Electricity and Magnetism.** (3:3:0 ea.) Prerequisite: Physics 317.  
Classical theory of electricity and magnetism developed from its experimental foundations. Electrostatics, magnetostatics, currents and their associated fields, circuit theory, Maxwell's equations.
- 386. Advanced Experimental Techniques.** (2:1:5)  
Basic techniques in electrical, optical, thermal, electronics, etc., measurements and instrumentation for contemporary experimental physics.
- 387. Advanced Physics Laboratory.** (2:1:3) Prerequisite: Physics 386 or equivalent.  
Application of contemporary methods and instruments to the experimental observation and measurement of physical phenomena.
- 391, 392. Seminar in Current Physics.** (1:1:0 ea.) Prerequisite: consent of instructor.
- 431. Thermal Physics.** (3:3:0)  
Principles of thermodynamics, with introduction to the concepts of kinetic theory and statistical mechanics.
- 441. Electronics for Physicists.** (4:3:3)  
Fundamental concepts of electronics and basic circuitry with emphasis on the tools needed for specialized research in a variety of fields of physics.
- 471. Optics and Electromagnetic Theory.** (3:3:0)  
An intermediate treatment of physical and quantum electromagnetic wave phenomena, with introduction to modern topics such as coherent interference, holography, lasers, radiation, etc.
- 497R. Introduction to Research.** (1-3:0:2-6 ea.)
- 511. Introduction to Theoretical Physics.** (3:3:0) Prerequisite: Math. 434 or equivalent.  
Basic principles of physics, with emphasis on their mathematical formulation. Topics treated vary from year to year.

- 513R. Special Topics in Contemporary Physics.** (1-3:1-3:0 ea.) Prerequisite: consent of instructor.  
Course content varies from year to year. Subject matter will generally be related to recent developments in physics.
- 517, 518. Mathematical Physics.** (3:3:0 ea.) Prerequisite: Physics 318 or equivalent.  
Topics in modern theoretical physics, including applications of matrix and tensor analysis and linear differential and integral operators.
- 527, 528. Introduction to Astrophysics.** (3:3:0 ea.) Prerequisite: consent of instructor.  
Fundamental principles and observational techniques of astrophysics.
- 529. Observational Astrophysics.** (3:3:0) Prerequisites: Physics 527, 528.  
Survey of important areas of current research in modern observational astrophysics.
- 536, 537. Space and Planetary Physics.** (3:3:0 ea.) Prerequisite: consent of instructor.  
Topics will include solar physics, interplanetary fields, atmospheres of earth and planets. Offered on sufficient demand.
- 551. Elements of Quantum Theory.** (3:3:0) Prerequisites: Physics 221; Math. 434; equivalents.  
Analytical foundations of quantum mechanics; applications from atomic and molecular spectroscopy, quantum statistics, solid state physics, etc.
- 552. Elements of Nuclear Theory.** (3:3:0) Prerequisite: Physics 551 or equivalent.  
Foundations of nuclear physics considered in a quantum theory context; nuclear scattering, radioactivity, nuclear reactions, nuclear models, elementary particles, etc.
- 555. Nuclear Reactor Physics.** (3:3:0) Prerequisite: Chem. Eng. 582 or consent of instructor.  
Introduction to neutron physics in multiplying and nonmultiplying media; diffusion and slowing down of neutrons; multigroup reactor theory.
- 557. Nuclear Reactor Physics Laboratory.** (1:1:2) Prerequisite: Physics 555.  
Laboratory experiments in neutron and nuclear reactor physics; reactor operation; cross-section, neutron age, and diffusion parameter measurements.
- 561. Fundamentals of Acoustics.** (4:4:0)  
General consideration of the generation, transmission, and reception of sound. Discussion of vibrating systems, properties of elastic media, mechanical and electrical energy, and radiation.
- 562. Acoustical Measurements.** (2:0:4) Prerequisite: completion of or concurrent registration in Physics 561.  
Selected experiments in acoustics.
- 565R. Acoustics of Music and Speech.** (3:3:0 ea.) Prerequisite: Physics 561 or consent of instructor.  
Content alternates between topics in music and topics in speech. Sound production and perception; techniques for analysis and synthesis; computer modeling; machine recognition; ensemble effects. Offered on sufficient demand.
- 566R. Architectural Acoustics and Noise.** (3:3:0 ea.) Prerequisite: Physics 561 or consent of instructor.  
Content alternates between topics in architectural acoustics and topics in noise. Computer modeling of enclosures; techniques for measuring noise spectra; room design; noise control. Offered on sufficient demand.
- 581. Introduction to X-Ray Diffraction Analysis.** (3:2:3) Prerequisite: consent of instructor.  
Introduction to the theory and experimental techniques of X-ray diffraction.

tion, including an introduction to crystal geometry. Offered on sufficient demand.

- 582. X-Ray Crystallography.** (3:2:3) Prerequisite: Physics 581 or equivalent. Introduction to X-ray crystallography, with emphasis on the space groups and structure-dominated crystal physics. Offered on sufficient demand.

- 591R. Seminar.** ( $\frac{1}{2}$ -1: $\frac{1}{2}$ -1:0)

Required of all graduate students every semester in residence.

- 611, 612. Astrophysics.** (3:3:0 ea.) Prerequisite: consent of instructor.

The theory of stellar atmospheres and interstellar matter. Offered on sufficient demand.

- 617. Advanced Topics in Theoretical Physics.** (3:3:0)

Applications of tensor analysis, differential geometry, and differential forms to various topics in physics such as mechanics, optics, relativity, and fluid dynamics.

- 618. Advanced Topics in Theoretical Physics.** (3:3:0)

Symmetry principles in quantum physics emphasizing group theory; applications to solid state, nuclear physics, relativity, and quantum field theory.

- 621. Dynamics.** (3:3:0) Prerequisite: Physics 322.

Advanced treatment of classical mechanics, including Lagrange's and Hamilton's equations, rigid body motion, and canonical transformations.

- 623. Dynamics of Continuous Media.** (3:3:0) Prerequisite: Physics 621.

The mechanics of systems with an infinite number of degrees of freedom. Topics include elasticity and hydrodynamics. Offered on sufficient demand.

- 625. Theory of Relativity.** (3:3:0) Prerequisite: Physics 621.

Review of special relativity. General relativity, with applications to modern astrophysics. Offered on sufficient demand.

- 626. Relativistic Astrophysics.** (3:3:0) Prerequisite: Physics 625.

Applications of general relativity to modern astrophysics, including gravitational collapse, black holes, cosmological models, gravitational waves, etc.

- 627, 628. Advanced Topics in Astrophysics.** (3:3:0 ea.) Prerequisite: consent of instructor.

Internal structure of stars; galactic structure. Offered on sufficient demand.

- 631, 632. Statistical Mechanics.** (3:3:0 ea.)

Advanced thermodynamics; classical statistical mechanics; quantum statistics; transport theory.

- 641, 642. Mathematical Theory of Electricity and Magnetism.** (3:3:0 ea.) Prerequisite: Physics 342.

Advanced electrostatics and magnetostatics; Maxwell's equations and electromagnetic waves; relativistic electrodynamics; radiation theory; interaction of matter with electromagnetic fields.

- 645, 646. Plasma Physics.** (3:3:0 ea.) Prerequisites: Physics 431, 621, 642.

A study of the plasma state of matter, including a description both in terms of individual particles and in terms of a fluid, with applications. Offered on sufficient demand.

- 651, 652. Quantum Mechanics.** (3:3:0 ea.) Prerequisites: Physics 518, 551.

Nonrelativistic quantum mechanics logically developed, with applications.

- 655, 656. Nuclear Physics.** (3:3:0 ea.) Prerequisite: Physics 552.

Fundamental properties of nuclei, nuclear forces, nuclear models, electromagnetic properties of nuclei, particle radioactivity, nuclear reactions, and interaction of radiation with matter. Offered on sufficient demand.



- 671. Atomic and Molecular Spectroscopy.** (3:3:0) Prerequisite: consent of instructor.  
Series and multiplet atomic spectra and rotational, vibrational, and electronic band spectra; determination of atomic and molecular structure.
- 672. Observation and Analysis of Spectra.** (3:1:4) Prerequisite: Physics 671 or consent of instructor.  
Analysis of optical spectra, with instrumentation and experimentation, including stellar spectroscopic techniques.
- 681, 682. Modern Theory of Solid State.** (3:3:0 ea.) Prerequisites: Physics 431, 551.  
An introductory course for students in physics, chemistry, and engineering. Physical properties of atomic and molecular systems which are arranged in a regular periodic structure.
- 697R. Research.** (Arr. ea.)
- 699. Research and Thesis for Master's Degree.** (Arr.:Arr.:Arr.)
- 711R. Advanced Topics in Physics.** (1-3:3:0 ea.) Prerequisite: consent of instructor.  
Course content varies from year to year. Special topics in theoretical and experimental physics are treated.
- 751, 752. Advanced Quantum Theory.** (3:3:0 ea.) Prerequisite: Physics 652 or consent of instructor.  
Topics in relativistic quantum mechanics, including quantum field theory.
- 797R. Research.** (Arr. ea.)
- 799. Research and Dissertation for Ph.D. Degree.** (Arr.)

## Political Science

**Distinguished Professor:** Grow.

**Professors:** Farnsworth, Hickman, Hillam (chairman, 270 MSRB), Mabey (graduate coordinator, 274 MSRB), Melville, Midgley, Reeder.

**Associate Professors:** Buckwalter, Morrell, Slover, Snow, Sorensen, Taylor, Tullis.

**Assistant Professors:** Williams, Wright.

**Program:** Master of Arts (M.A.).

**Entrance Examinations Required:** Graduate Record Examination (general and political science sections). All international students whose native language is not English are required to take the TOEFL.

**Application Consideration Dates:** Same as Graduate School.

**Entry Times:** Any regular registration.

### Master of Arts

**Prerequisites:** Fifteen undergraduate semester hours in political science or equivalent as approved by committee.

**Field:** Political science.

**Requirements:** 24 semester hours plus thesis (6-hr. minimum), a written comprehensive exam upon completion of 18 semester hours, and an oral defense of the thesis.

**Required Courses:** A graduate student's program will be determined in consultation with his committee prior to registration.

## Courses

- 300. Political Inquiry.** (3:2:1) Prerequisites: Pol. Sci. 110, 150; completion of or concurrent registration in Pol. Sci. 170.  
Systematic treatment of methodology in political science, including theory and techniques of qualitative and quantitative research designs.
- 301. The Logic of Political Inquiry.** (3:3:0)  
Analyzes comparatively the logic of scientific and normative inquiry and the logical structure of the products of such inquiry.
- 302. Moral Foundations of Politics.** (3:3:0) Midgley, Sorensen  
General historical introduction to the major expressions of political philosophy.
- 303. Empirical Political Theory.** (3:3:0) Buckwalter  
Background, development, and critique of empirical theories about systems, functionalism, elites, etc., in the political process.
- 304. Western Political Heritage—Ancient.** (3:3:0) Midgley, Sorensen  
The history of political philosophy, beginning with the pre-Socratics and ending with Hobbes.
- 305. Western Political Heritage—Modern.** (3:3:0) Midgley, Sorensen  
The history of political philosophy, beginning with Hobbes and ending with the recent revival of political philosophy.
- 307. American Political Heritage.** (3:3:0) Midgley, Sorensen  
American political and legal ideas from the colonial period to the present.
- 309R. Topics in Political Philosophy.** (3:3:0) Midgley, Sorensen  
When taught the topics will be listed in the class schedule, e.g., contemporary political philosophy, Asian political thought, logic and ethics, Marxism, political theology, etc.
- 310. The United States Political System.** (3:3:0) Prerequisite: Pol. Sci. 110.  
Buckwalter, Grow, Melville  
Systematic inquiry into the national government and politics of the U.S. in the context of American society as a whole.
- 311. State and Local Government and Politics.** (3:3:0) Home Study also.  
Prerequisite: Pol. Sci. 110. Grow, Williams  
Relation of state and national governments; forms of state governments and politics; types of municipal governments and their operation.
- 312. Urban Government.** (3:3:0)  
Growth, development, dynamics, and problems of urban government.
- 313. Parties and Pressure Groups in the U.S.** (3:3:0) Prerequisite: Pol. Sci. 110.  
Grow  
Organization and methods of action of American political parties and pressure groups.
- 314. The United States Presidency.** (3:3:0) Melville  
The American President and Vice-President, White House Office, Bureau of the Budget, Cabinet, and National Security Council.
- 315. American Legislative Systems.** (3:3:0) Prerequisite: Pol. Sci. 110.  
Buckwalter, Grow  
Structure and organization of Congress and state legislative bodies; nature of business transacted and conflict resolution.
- 319R. Topics in American Government and Politics.** (3:3:0) Buckwalter, Slover, Grow, Melville, Williams, Tullis  
When taught the topic will be listed in the class schedule, e.g., inter-governmental relations, military government, minority group politics, etc.
- 329R. Topics in Political Behavior.** (3:3:0) Taylor, Sorensen, Buckwalter, Farnsworth, Tullis  
When taught the topic will be listed in the class schedule, e.g., psychology of politics, sociology of politics, political socialization, etc.

- 330. Introduction to Public Administration.** (3:3:0) Grow, Slover  
Organization and operation of government. Relationship of administration of other branches of government; types of control over administration.
- 339R. Topics in Public Affairs.** (3:3:0) Buckwalter, Slover, Williams  
When taught the topic will be listed in the class schedule (e.g., Indian tribal politics, environmental politics, public policy, U.S. overseas operations).
- 350. Political Systems of the USSR and Eastern Europe.** (3:3:0) Recommended: Pol. Sci. 150 or Hist. 330 or 331. Mabey, Morrell  
The Communist Party and Soviet government; Marxist-Leninist ideology; formulation and execution of policy, including social and economic impacts.
- 351R. Parliamentary Government and Politics.** (3:3:0) Mabey, Farnsworth, Morrell, Grow  
Study of political behavior in parliamentary systems, e.g., United Kingdom, Japan, Western Europe, etc. Selected emphasis will be announced in the class schedule.
- 352R. Third World Government and Politics.** (3:3:0) Farnsworth, Tullis  
Study of political behavior in Third World areas, e.g., Latin America, Asia, Africa, etc. Selected emphasis will be announced in the class schedule.
- 359R. Topics in Comparative Government and Politics.** (3:3:0) Farnsworth, Mabey, Morrell, Tullis  
Specific topics to be treated (e.g., elections, legislatures, political parties, revolution, politics and social change, local government) will be announced in the class schedule.
- 360. Constitutional Law—American Federal System.** (3:3:0) Reeder, Williams
- 361. Constitutional Law—Rights and Immunities.** (3:3:0) Reeder, Williams
- 363. Administrative Law of the U.S.** (3:3:0) Reeder  
Legal setting for administrative bodies and judicial control of administrative action. Cases in administrative law read and discussed.
- 364. Jurisprudence.** (3:3:0) Midgley, Reeder  
Problem approach to ancient and modern legal philosophies, with special attention given to the nature of justice and the relations of law to morality.
- 368. Anglo-American Legal Institutions.** (3:3:0)  
Origins and development of common law and equity, the writ system, court systems, basic legal terms, and the anatomy of a lawsuit.
- 370. Theory of International Relations.** (3:3:0) Prerequisite: Pol. Sci. 170. Recommended: Pol. Sci. 300. Hillam  
Approaches to the study of the actions and interactions of national systems.
- 373. International Law.** (5:5:0) Reeder  
Nature and function of international law; recognition, succession, jurisdiction rights, and immunities of states; nationality and jurisdiction over nations.
- 375. International Organizations.** (3:3:0) Prerequisite: Pol. Sci. 170. Recommended: Pol. Sci. 300. Taylor  
Survey of process of international organizations in historical and political perspective.
- 377R. Foreign Relations** (3:3:0) Taylor, Buckwalter, Hickman, Morrell  
Study of the foreign relations of such countries as the United States, the Soviet Union, and China. Selected emphasis will be announced in the class schedule.
- 378R. International Systems.** (3:3:0) Hickman, Hillam, Morrell, Taylor, Tullis  
The study of the international relations of Asia, Africa, the Middle East,

Latin America, and the Communist World. Selected emphasis will be announced in the class schedule.

- 379R. Topics in International Relations.** (3:3:0) Hickman, Hillam, Slover, Taylor  
Study of such topics as arms control, environment, population, development, strategy, etc. Selected emphasis will be announced in the class schedule.
- 500R. Field Study.** (1-9:0:0) Staff  
Study and field experience through observation and participation in the process of government.
- 501R. Advanced Topics.** (3:3:0)  
Select advanced topics for graduate students only. Can be taken concurrently with 300- and 400-level courses.
- 505. Asian Political Thought.** (3:3:0) Jagchid  
Survey of Asian political thought both traditional and modern.
- 512. Public Policy.** (3:3:0) Recommended: Pol. Sci. 310 and 312.  
A treatment of contemporary public problem identification; the processes of policy formulation and legitimization; and evaluation of public policies.
- 645R. Graduate Colloquium.** ( $\frac{1}{2}$ :1:0 ea.) Buckwalter  
Required of all graduate students each semester in residence.
- 690R. Seminar in Political Philosophy.** (1-3:1-3:0 ea.) Prerequisite: related advanced course(s). Melville, Midgley, Sorensen
- 691R. Seminar in Politics** (1-3:1-3:0 ea.) Prerequisite: related advanced course(s). Buckwalter, Grow, Melville, Slover
- 692R. Seminar in Empirical Theory.** (3:3:0) Prerequisite: related advanced courses. Buckwalter, Taylor
- 695R. Seminar in Comparative Government and Politics.** (1-3:1-3:0 ea.) Prerequisite: related advanced course(s). Farnsworth, Mabey, Morrell, Tullis
- 696R. Seminar in Public Law.** (1-3:1-3:0 ea.) Prerequisite: related advanced course(s). Reeder, Williams
- 697R. Seminar in International Relations.** (1-3:1-3:0 ea.) Prerequisite: related advanced course(s). Hickman, Hillam, Taylor
- 698R. Directed Individual Study.** (1-2:1-2:0 ea.) Prerequisite: permission of graduate committee and instructor.
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)

## Psychology

**Professors:** Allen, Bennion, Bergin, Cooper, Cundick, Daniels, Fleming (graduate coordinator, 1230B SFLC), Hardy, Howell, Pedersen (chairman, 1230-A SFLC), B. Robinson, Smith.

**Associate Professors:** Bunker, Jensen, Payne, Stimpson, Thorne.

**Assistant Professors:** Brown, Higbee, Jenkins, Lambert, Maughan, P. Robinson, Sorenson, Weight, Wells.

### Programs:

School Psychology: Master of Science (M.S.).

General Psychology: Doctor of Philosophy (Ph.D.).



Clinical Psychology: Doctor of Philosophy (Ph.D.).

Instructional Psychology: Doctor of Philosophy (Ph.D.).

**Entrance Examinations Required:** None.

**Application Consideration Dates:** January 15 (and June 15 to fill the remaining available positions, if any).

**Entry Times:** Fall Semester (exceptional cases may be considered for Winter Semester and Spring and Summer terms).

#### **Master of Science: School Psychology**

(Interdisciplinary program jointly offered by the departments of Psychology and Educational Psychology)

**Prerequisites:** Major in psychology, including elementary psychological statistics. Those who have not had courses in child psychology, learning, personality, and exceptional children will be required to take such courses as part of their program.

**Minors Permissible:** Option II only.

**Requirements:** Minimum of 42 semester hours plus thesis (6-hr. min.—699). Sixty semester hours are required for certification in many states and 60 semester hours are recommended.

**Required Courses:** Psych. 640, 641, 670, 680; Ed. 647, 665R, 667, 680R, 690R, 696R, 470 or CDFR 430. Students majoring in the Psychology Department are also required to take Psych. 670, 690, and 699. Students majoring in the Educational Psychology Department are also required to take Stat. 552, Ed. 660 and 699. Additional elective courses required as part of the program are to be selected with approval of the student's committee. Psych. 640, 680 should be taken first Fall Semester in residence. Psych. 641 should be taken first Winter Semester in residence. All required courses except Psych. 690, 699, or Ed. 660, 699 must be taken before Ed. 680R.

**Note:** Most states require the certification of practicing school psychologists. Early in the student's program he should consult the certification requirements for the state or states in which he may wish to work. These requirements vary widely. The above courses offer a solid core of training; however, most states have special requirements that should be taken into account when planning the graduate program. A file of many states' requirements is maintained at the Psychology Clinic, 257 EDLC.

**Professional Preparation:** Preparation for work in school districts as a school psychologist.

#### **Doctor of Philosophy: General Psychology**

**Prerequisites:** Bachelor's degree, including courses in general psychology, elementary psychological statistics, experimental psychology, and three courses chosen from sensation and perception, motivation, personality, and principles of learning or their equivalent. Tool requirement: Option I, II, III, or IV is acceptable. If Option III is used, the tool subject will be computer science (Comput. Sci. 130 or 131 and Psych. 570). If Option IV is used, the tool subject will be computer science (Math. 112; Comput. Sci. 131 or 231, 571; Psych. 570 and 672 or 673; and one class from Stat. 433, 531, 534, or 536).

**Fields:** Experimental psychology, social psychology.

**Minors Permissible:** Any approved minor or Option II.

**Requirements:** Minimum of 54 semester hours plus dissertation (18-hr. min.—799). Completion of courses with a minimum grade of B- in each course and an overall GPA of 3.2 in all courses.

**Required Courses:** Psych. 520, 530, 550, 560, 565, 585, 610, 670, 671, 690, and other courses as specified by the advisory committee.

**Professional Preparation:** University and college positions, organizational consultation, and research.

### **Doctor of Philosophy: Instructional Psychology**

(Interdisciplinary program jointly offered by the departments of Psychology and Educational Psychology)

For information concerning this developing program, please communicate directly with the Department of Psychology or the Department of Educational Psychology.

### **Doctor of Philosophy: Clinical Psychology**

**Prerequisites:** Bachelor's degree, including courses in general psychology, elementary psychological statistics, experimental psychology, personality, learning, abnormal psychology, and sensation and perception or motivation (equivalent course content is acceptable). Tool requirements: Option I, III, or IV is acceptable. If Option I is desired, petition must be filed stating the usefulness of this language in the specific clinical work that is anticipated. If Option III is used, the tool subject will be computer science (Comput. Sci. 130 or 131 and Psych. 570). If Option IV is used, the tool subject will be computer science (Math. 112; Comput. Sci. 131 or 231, 571; Psych. 570 and 672 or 673; and one class from Stat. 433, 531, 534, or 536).

**Minors Permissible:** Option II only.

**Requirements:** Minimum of 71 semester hours plus dissertation (18-hr. min.—799). Completion of courses with a minimum grade of B- in each course and an overall GPA of 3.2 in all courses. Satisfactory completion of specialty examinations during the third year of program. One year's internship. (Comprehensive examinations must be completed prior to internship.)

**Required Courses:** The following core courses: Psych. 520, 530, 560, 565, 585, 610, 670, 671, and 690; plus 15 hours of committee-approved electives. Completion of the following courses in the sequence as listed:

Fall Semester, first year  
Psych. 640, 645, 670, 784R,  
and one graduate core  
course as outlined above  
Fall Semester, second year  
Psych. 642, 681, 690, and one  
other graduate core course  
as outlined above  
Fall Semester, third year  
Psych. 690, 740R  
Elective courses for  
Option II requirement

Winter Semester, first year  
Psych. 641, 671, 680, 784R,  
and one graduate core  
course as outlined above  
Winter Semester, second year  
Psych. 675, 682, and two  
graduate core courses as  
outlined above  
Winter Semester, third year  
Psych. 740R  
Elective courses for Option II  
requirement

**Professional Preparation:** College and university positions, mental health centers, hospitals, and mental health program evaluation.

**Graduate Minor in Psychology:** (See attached citation).

### **Courses**

**511. Instructional and Communicative Techniques.** (2:1:2) Prerequisite: graduate standing in psychology.

Under faculty supervision, the student is given experience in planning, conducting, and carrying out the instruction of an undergraduate course.

**520. Advanced Developmental Psychology.** (3:3:0)

An overview of major research in genetic psychology, with emphasis placed on theory, content, and methodology.

- 526. Mental Retardation.** (2:2:0) Prerequisite: Psych. 378 or equivalent.
- 530. (Sociol.—Psych.) Theory and Research in Social Psychology.** (3:3:0) Prerequisite: Sociol.-Psych. 350.  
A survey of current theory and research in social psychology, with emphasis on understanding the individual interaction.
- 550. Personality Theory.** (3:3:0) Prerequisites: Psych. 111, 450, and five additional hours in psychology.  
A critical review of the contemporary theories of personality that have been developed within the framework of major psychological systems.
- 554. Psychology of Religion.** (2:2:0) (G-SS) Prerequisite: Psych. 111.  
Bunker  
Classification of religious behavior and experience; source of religious motivation; religion and the growth process.
- 555. (Sociol.-Psych.) Group Dynamics.** (3:3:0) Home Study also. Prerequisite: Sociol.-Psych. 350.  
Research and theories in group dynamics. May be used for credit either in psychology or sociology, but not in both.
- 560. Learning Theory.** (3:3:0) Prerequisites: Psych. 111, 460, and five additional hours in psychology.  
A critical review of current theories of learning and persistent problems.
- 561. Psycholinguistics.** (3:3:0) Prerequisite: Psych. 111.  
A survey of research and theory in verbal learning and verbal behavior, and the social implications of language usage.
- 562. Cognitive Processes.** (3:3:0) Prerequisites: Psych. 360, or equivalent; graduate standing or consent of instructor.  
A study of major theoretical and empirical developments. Interaction of sensory, perceptual, learning, and thinking processes.
- 565. Motivational Psychology.** (3:3:0) Prerequisites: Psych. 365 or equivalent; graduate standing or consent of instructor.  
Theoretical, historical, and empirical overview; recent trends and issues. Role of animal studies; methodological problems.
- 570. Computer Use in Behavioral Sciences.** (3:3:6) Prerequisites: Psych. 370; Comput. Sci. 231; or equivalent.  
The use of electronic digital computers in the behavioral sciences.
- 574. Advanced Experimental Psychology.** (2:1:5) Prerequisites: Psych. 111, 374, or equivalent.  
Principles of instrumentation and experimental designs. Experience in planning, conducting and reporting experiments.
- 577. Laboratory Instrumentation and Techniques.** (3:1:4) (m) Prerequisite: Psych. 374.
- 580. Comparative Psychology.** (3:3:0) Prerequisite: Psych. 111.  
Similarities and differences in the behavior of species.
- 583. Behavior Modification Techniques.** (3:2:2)  
Practical applications of behavior modification to academic, discipline, and emotional target behaviors of individuals and groups.
- 585. Advanced Physiological Psychology.** (3:3:0) Prerequisite: Psych. 111.  
Critical study of physiological processes and psychological functions, including sensation, emotion, sleep and activity, motivation, and learning.
- 587. Psychopharmacology.** (3:3:0) (m) Prerequisite: Psych. 585 or equivalent.  
A study of the major classes of psychoactive drugs, with emphasis on drug-behavioral interactions.

**597R. Independent Research.** (1-3:0:2-6 ea.)

**610. History and Systems of Psychology.** (3:3:0) Prerequisite: graduate standing.  
A survey of the origins and development of modern psychology, including consideration of the schools and theoretical systems.

**630. (Sociol.-Psych.) Attitude Change.** (3:3:0) Prerequisite: graduate standing or consent of instructor.

Study of attitude development, change, and assessment, including a focus on both individual and mass persuasion.

**640. Psychodiagnostics I: Intelligence Testing.** (3:3:5) Prerequisites: Acceptance in clinical, counseling, or school psychology program.

**641. Psychodiagnostics II: Child and Adolescent.** (3:2:6) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

**642. Psychodiagnostics III: Adult.** (3:2:3) Prerequisites: Acceptance in clinical, counseling, or school psychology program.

**644. Rorschach Techniques.** (3:2:5) Prerequisites: Acceptance in clinical, counseling, or school psychology program.

**645. Issues in Clinical Psychology.** (3:3:0) Prerequisites: Acceptance in clinical, counseling, or school psychology program.

**646. Community Mental Health.** (3:2:2) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

Program evaluation, epidemiology of crime, alcoholism, suicide, psychoses, and mental retardation. Offered alternate years.

**651. Psychopathology.** (3:3:2) Prerequisite: nine hours in psychology.

**665. Human Motivation.** (3:3:0) Prerequisites: Psych. 365 or equivalent; graduate standing in psychology or allied discipline.

**670. Advanced Statistics I.** (3:3:2) Prerequisite: Psych. 370.

**671. Advanced Statistics II.** (3:3:2) Prerequisite: Psych. 670.

**672. Psychological Scaling.** (3:3:0) Prerequisite: Psych. 670.

Scaling theory and methodology, with emphasis upon measurement in psychophysics and differential psychology. Offered alternate years.

☐ **Org. Behav. 672. The Consultative Process.** (3:3:0)

**673. Multivariate Analysis in Psychology.** (3:3:0) Prerequisite: Psych. 670.

The principal descriptive statistics used in the analysis of multiple measurements: factor analysis, canonical correlation, multivariate analysis of variance and covariance, and multiple discriminant analysis. Offered alternate years.

**675. Personality Dynamics.** (3:3:0) Prerequisites: undergraduate core courses and consent of instructor.

☐ **Org. Behav. 675. Theory and Method of Laboratory Training.** (3:2:2)

**678. Measurement Theory.** (3:3:0)

**680. Psychotherapy I: Child and Family.** (3:3:3) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

**681. Psychotherapy II: Adult.** (3:3:0) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

**682. Psychotherapy III: Group.** (3:1:6) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

**683. Behavior Modification Therapy.** (3:2:1) Prerequisite: Acceptance in clinical, counseling, or school psychology program.



**690. Seminar: Research Problems.** (2:2:0)

**695R. Independent Readings.** (1-2:Arr.:Arr. ea.)

**699. Master's Thesis.** (6-9:Arr.:Arr.)

**740R. Clinical Practicum.** (3:0:8 ea.) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

**741R. Practicum in Assessment.** (3:0:8) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

**742R. Projects in Clinical Psychology.** (3:0:8 ea.) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

**794R. Clinics Practicum.** (1-2:0:3-6 ea.) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

Supervised practical experience in individual and group testing and therapy, in various clinical settings.

**750, 751, 752, 753. Clinical Internship.** (2:0:40 ea.) Prerequisite: Acceptance in clinical, counseling, or school psychology program.

**784R. Interpersonal Skills.** (0:0:3 ea.) Prerequisites: Acceptance in clinical, counseling, or school psychology program.

**790R. Seminar: Developmental.** (2:2:0 ea.) Prerequisite: consent of instructor.

**791R. Seminar: Personality.** (2:2:0 ea.) Prerequisite: consent of instructor.

**792R. Seminar: Social Psychology.** (2:2:0 ea.) Prerequisites: consent of instructor; Sociol.-Psych. 350.

**793R. Seminar: Perception and Cognition.** (2:2:0 ea.) Prerequisite: consent of instructor.

**794R. Seminar: Motivation.** (2:2:0 ea.) Prerequisite: consent of instructor. Consideration of selected topics in motivation.

**795R. Seminar: Learning.** (2:2:0 ea.) Prerequisite: consent of instructor.

**796R. Seminar: Clinical Psychology.** (2:2:4 ea.) Prerequisite: consent of instructor.

**797R. Independent Research.** (1-4:0:3-12 ea.) Prerequisite: consent of instructor.

**799. Ph.D. Dissertation.** (Arr.)

## Recreation Education

**Professors:** Hafen (chairman, 273-C RB), Hartvigsen, I. Heaton, Jensen, Shaw (college coordinator, 221-F RB).

**Associate Professors:** Call, de Hoyos, A. Heaton, Naylor, Olsen, Packer, Thorstenson.

**Assistant Professor:** Rogers.

**Programs:** Master of Arts (M.A.), Master of Recreation Education (M.R.Ed.).

**Entrance Examination Required:** Cooperative English Test 2A, "Effectiveness of Expression."

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

**Master of Arts**

**Prerequisites:** Undergraduate major or minor in recreation. Upon special permission, students may be admitted with other undergraduate work but must complete 8 hours of selected prerequisite classes.

**Fields:** Community school leadership, municipal recreation administration, outdoor recreation, therapeutic recreation.

**Minors Permissible:** Option I.

**Requirements:** Minimum of 26 semester hours plus thesis (6-hr. min.).

**Required Courses:** Community school option: Rec. Ed. 585, 605, 679R, 692; 696R, Ed. 675 or Rec. Ed. 505 and Soc. 471. All other options: Rec. Ed. 609, 692, 694 and Statistics 552.

**Master of Recreation Education**

**Prerequisites:** Undergraduate major or minor in recreation. Upon special permission, students may be admitted with other undergraduate work but must complete 8 hours of selected prerequisite classes.

**Fields:** Community school leadership, municipal recreation administration, outdoor recreation, therapeutic recreation.

**Minors Permissible:** Option I.

**Requirements:** Minimum of 32 semester hours, including field project (2-hr. min.).

**Required Courses:** Community school option: Rec. Ed. 585, 605, 679R, 692; 696R, Ed. 675 or Rec. Ed. 505 and Soc. 471. All other options: Rec. Ed. 585, 609, 692, and 694.

**Courses**

- 502R. Camping Workshop.** (2:2:4 ea.) Fee required. Hansen, Packer  
Features training and preparation for a week of laboratory experience in a primitive area.
- 503. Administration of School and Community Camps.** (2:2:0) Hansen  
Administration of camps and outdoor programs, site selection and development, and program planning and staffing.
- 505. Administration of Community Recreation.** (3:3:0) Prerequisites: Rec. Ed. 301, 337.  
Facilities, personnel, financing, budget, legal aspects, and departmental organization as they relate to community recreation.
- 570. Therapeutic Recreation for Neurological Handicaps.** (2:2:0) Prerequisites: Rec. Ed. 370, 470, or equivalent.  
Recreation programs in school, community, and hospital settings, for individuals with neurological and other handicaps.
- 583. Workshop in Recreational Dance.** (1-2:0:40-80) A. Heaton  
Advanced techniques for teaching dance to recreation groups.
- 585. The Community School.** (2:2:1) Home Study also. I. Heaton, Olsen  
Basic concepts of the community school, including its history, organization, funding, leadership, facilities, and value to the community.
- 605. Community School Administration.** (2:2:0) I. Heaton, Rogers  
Analysis of administrative problems related to leadership, organization, finance, legal aspects, and public relations.
- 609. The Recreation Program.** (2:2:0) Thorstenson  
Analysis and design of community and agency recreation programs.

- 670. Problems in Recreation for the Neuropsychiatric Patient.** (2:2:0) Pre-requisites: Rec. Ed. 370, 470, or equivalent. Call  
Programming for resident, day-care, and out-patient facilities for emotionally or psychologically disturbed patients.
- 671. Therapeutic Recreation in Rehabilitation.** (2:2:0) Prerequisites: Rec. Ed. 370, 470, or equivalent. Thorstenson  
The rehabilitation team and the relationship of the recreation therapist to other team members.
- 679R. Internship in Community School Leadership.** (1-6:1-6:3-30 ea.)  
I. Heaton, Olsen, Rogers  
Students are assigned to work with experienced community school directors so as to gain practical experience.
- 692. Research Methods in Recreation.** (3:3:0) Shaw  
Includes preparation of the research proposal and guidelines to writing the thesis.

## Sociology

**Professors:** Bahr (graduate coordinator, 172 FOB), Bradford, Christiansen, Duke, Larsen, Peterson (chairman, 184 FOB), Smith, Sorenson, Staley, Warner.  
**Associate Professors:** Blake, Chadwick, Condie, Craig, Kunz, Seggar, Spencer.  
**Assistant Professors:** G. DeHoyos, England.

**Programs:** Master of Science (M.S.), Doctor of Philosophy (Ph.D.).

**Entrance Examinations Required:** The Graduate Record Examination, including the aptitude test and the advanced test in sociology.

**Application Consideration Dates:** April 15 for Fall Semester, October 15 for Winter Semester, February 15 for Spring Term, and March 15 for Summer Term.

**Entry Time:** Any regular registration.

### Master of Science

**Prerequisites:** Minimum of 15 semester hours (or equivalent) in sociology, including courses in introductory sociology, statistics, methods of research in sociology, development of sociological theory, and contemporary sociological theory.

**Field:** General sociology.

**Minors Permissible:** Option I or Option II. However, all candidates for the M.S. must complete 20 hours of required classes, including 14 hours in tool areas and the 6-hour graduate survey course in either social organization or social psychology.

**Requirements:** (1) Completion of 30 research hours of acceptable graduate work, including 24 hours in regular course work and 6 hours on thesis project; (2) Demonstration of competence in the following tool areas, both by completion of required course work and examination: sociological theory, research methods, and statistics; (3) Demonstration of competence, by adequate performance in a comprehensive written examination, in the substantive areas of either social organization (including social stratification, social change, complex organizations, community, and social institutions) or social psychology (including attitude and behavior, major social psychological theories, social influence, dynamics of attitude change, personality and culture, group dynamics, communication, leadership, and social exchange). (4) Completion and oral defense of an acceptable thesis.

**Required Courses:** Sociol. 600, 606, 610, and 530.

### Doctor of Philosophy

**Prerequisite:** A master's degree in sociology or the equivalent.

**Fields:** Family sociology, social organization, social psychology.

**Minors Permissible:** An approved minor field.

**Requirements:** (1) Completion of 60 semester hours of acceptable graduate work, including at least 42 semester hours of graduate work in sociology completed in graduate status, exclusive of the doctoral dissertation and the master's thesis; (2) Demonstration of competence at the doctoral level in the following tool areas, both by completion of required course work and examination: sociological theory, research methods, and statistics; (3) Demonstration of competence, by adequate performance in a comprehensive written examination, in two of the following special areas: social organization, social psychology, deviant behavior, race and ethnic relations, family sociology, demography and human ecology; (4) Preparation and oral defense of a dissertation project prospectus; (5) Completion and oral defense of an acceptable dissertation.

**Required Courses:** All courses required for the Master of Science degree in sociology or their equivalent, and Sociol. 706.

### Graduate Minor in Sociology

A student working toward a master's degree in another department may complete a minor in sociology by satisfactorily completing Sociol. 610 plus graduate semester hours in areas related to his major specialization, as approved by his advisory committee.

A student working toward a doctoral degree in another department with a minor in sociology must, in collaboration with the member of his committee from the sociology faculty, outline a program in accordance with the needs of the student. The student selects a specialty area from the fields listed above and must take the same comprehensive examination given to students from the Department of Sociology who have selected that area.

### Courses

- 504. Mathematical Sociology.** (3:3:0) (G-SS) Prerequisite: Math. 105. England  
Mathematical techniques of simulating and modeling social processes.
- 522. Social Stratification.** (3:3:0) Prerequisite: Sociol. 111. G. DeHoyos, Duke  
Status, power, and class systems in various societies.
- 525. Sociology of Religion.** (2:2:0) Seggar, Staley  
Influences of social factors in the development of various religious systems.
- 526. Sociology of Education.** (2:2:0) (G-SS) Craig, Smith  
Social origins of goals and curricula, theories of change and control, and the nature of achievement in education.
- 527. Political Sociology.** (3:3:0) (G-SS) Prerequisite: Sociol. 111 or consent of instructor. England  
Power and decision making in social groups; social bases of government and political behavior; relationship of governmental institutions to other societal institutions.
- 530. (Sociol.-Psych.) Theory and Research in Social Psychology.** (3:3:0) Prerequisite: Sociol.-Psych 350. Larsen, Seggar  
Current theory and research in social psychology, with emphasis on understanding the individual and his interpersonal interaction.
- 540. The Family Institution.** (2:2:0) Bradford, Christiansen  
The family in several different societies and problems created by various family systems.



- 545. Demographic Analysis.** (3:3:0) Prerequisite: Sociol. 245. Kunz
- 552. Personality: Culture and Society.** (3:3:0) Prerequisite: Sociol. 111 or Psych. 111. G. DeHoyos, Staley  
The role of culture and society in the forming and functioning of personality. Compares various peoples and cultures.
- 555. (Sociol.-Psych.) Group Dynamics.** (3:3:0) Prerequisite: Sociol. 350. England
- 581. Seminar in Criminal Behavior Systems.** (2:2:0) Prerequisites: Sociol. 111 and 381. Smith, Symons  
Research and theory concerning criminal typologies. A diagnostic course to complement Sociol. 582.
- 582. Seminar in Contemporary Corrections.** (3:3:0) Prerequisites: Sociol. 111 or 112, and 381. Smith, Symons  
Contemporary police, judicial, and treatment programs for criminals. Presentence procedures, probation, parole, classification, and modern rehabilitation programs in and out of prison are studied sociologically.
- 590R. Special Topics in Sociology.** (1-3:1-3:0 ea.) (G-SS) Prerequisite: consent of instructor.
- 595R. Directed Readings.** (1-3:0:2-6 ea.)
- 597R. Special Research Problems.** (1-3:0:2-6 ea.)
- 600. Advanced Research Methods.** (3:3:0) Prerequisite: Sociol. 200 or consent of instructor. Johnson  
Investigation of sociological data; field projects.
- 601. Seminar in Survey Research.** (3:3:0) Prerequisites: Sociol. 200 or equivalent; graduate standing in sociology or allied discipline. Chadwick, Johnson  
Survey research as a specific research standard technique of the behavioral sciences, with emphasis on research and sampling designs.
- 606. Intermediate Statistics.** (3:3:0) Prerequisite: Sociol. 206. England  
Hypothesis testing and decision making for sociologists.
- 610. Seminar in Contemporary Sociological Theory.** (2:2:0) Prerequisites: Sociol. 411 and 412. G. DeHoyos, Duke  
Recent developments in theory, including structural-functionalism, conflict theory, general systems theory, exchange theory, and symbolic interactionism.
- 611. Seminar in Sociological Theory Building.** (2:2:0) Prerequisite: Sociol. 610. Peterson
- 612. Seminar in the Development of Sociological Theory.** (2:2:0) Prerequisite: Sociol. 610. Duke  
Contributions of sociological theorists, including Durkheim, Weber, Pareto, and Simmel, to sociological theory development.
- 623. Problems in Race Relations.** (2:2:0) Chadwick
- 630. (Sociol.-Psych.) Attitude Change.** (3:3:0) Prerequisite: graduate standing or consent of instructor. Blake, Larsen  
Theoretical approaches to the study of attitude development, change, and assessment, including a focus on both individual and mass persuasion.
- 640. Familial Role Structure.** (3:3:0) Prerequisite: Sociol. 340. Bradford, Kunz  
Analysis of various roles in the family in various societies, with emphasis on the United States.
- 670. Contemporary Urban Social Structure.** (3:3:0) Prerequisite: Sociol. 370. Staley  
Research-oriented examination of social forces in contemporary urban life which influence patterns of human interaction.

- 675. Seminar in Problems of Rural Society.** (3:2:1) Prerequisite: consent of instructor. Christiansen  
Field-type training, with on-the-job contacts with county agents, etc.
- 697R. Directed Research.** (1-3:0:2-6 ea.)
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.)
- 706. Advanced Statistical Methods.** (2:2:0) Prerequisite: Sociol. 606. England  
Factor analysis, multivariate analysis, and covariate analysis.
- 720. Seminar: Social Organization.** (2:2:0) Prerequisites: Sociol. 111 and 320.  
Kunz, Warner
- 740. The Family.** (2:2:0) Prerequisite: Sociol. 540. Bradford
- 750. Seminar: Social Psychology.** (2:2:0) Prerequisites: Sociol. 350 and consent of instructor. Blake, Larsen
- 799. Dissertation for Ph.D.** (Arr.)

## Speech and Dramatic Arts

**Professors:** Bateman, Clinger, Gledhill, Hansen, Low, Metten, Newman (chairman, D-581 HFAC), Woodbury.

**Associate Professors:** Gibb, Henson, Oaks, Pope, Richardson, Stephan, Weaver, Whitman.

**Assistant Professors:** Jenkins, K. Jones, Moore, Peterson.

### Programs:

Dramatic Arts: Master of Arts (M.A.), Doctor of Philosophy (Ph.D.).

Speech Communication: Master of Arts (M.A.).

Communicative Habilitation: Master of Science (M.S.), Master of Communicative Habilitation (MCH).

**Application Consideration Dates:** Same as Graduate School deadlines.

**Entry Times:** Any regular registration.

**Prerequisites:** Acceptable undergraduate background in dramatic arts.

**Fields:** Theater history, acting, directing, interpretation, technical theater, playwriting, child drama, theater administration.

**Minors Permissible:** Option I or Option II.

**Requirements:** 26 hours plus thesis (6-hr. min.—699); or 32 hours plus a written report of project (to be filed with graduate school) and a comprehensive examination.

**Required Course:** Sp. and Dram. Arts 690, required of all graduate students during first semester of registration.

### Dramatic Arts: Doctor of Philosophy

**Field:** Dramatic arts.

**Requirements:** 45 hours in drama, 15 hours in a minor, plus a dissertation (18-hr. min.—799). Three kinds of dissertation research will be accepted: (1) scholarly analysis of history, theory, and criticism; (2) research and strong creative achievement in playwriting and theatrical production; and (3) measurement studies.

**Required Courses:** Sp. and Dram. Arts 690 and 799.

**Speech Communication: Master of Arts**

**Prerequisites:** 1. Candidate must have received B.A. or B.S. from an accredited institution with a 3.0 GPA or over in his last 60 semester hours of course work. 2. If candidates do not have an adequate background in Speech Communication certain undergraduate courses will need to be completed before the Master's degree program is undertaken. Fulfillment of this requirement will be decided upon in each individual case by the candidate's advisory committee. Candidate must take the Miller Analogy which may be taken at the BYU Testing Service. 3. Candidate must meet all Brigham Young University Graduate School Requirements.

**Entrance Examination Required:** Miller Analogies Test.

**Fields:** Dramatic arts, speech.

**Minors Permissible:** Option I or Option II.

**Requirements:** 24 semester hours plus thesis

**Required Courses:** Sp. and Dram. Arts 600 and 690.

**Communicative Habilitation: Master of Communicative Habilitation**

**Prerequisites:** Undergraduate major in communicative habilitation or its equivalent; and appropriate background in elementary education.

**Fields:** Educational audiology, speech pathology.

**Minor Permissible:** Option II only.

**Requirements:** 34 semester hours including internship and special project.

**Required Courses:** Sp. and Dram. Arts 630, 631, 632, 633, 644R, 680R, or equivalents: Stat. 552. Six of the following seven courses: Sp. and Dram. Arts 636, 640, 642, 643, 646, 647, and 648, or their equivalents. Educational audiology majors will substitute appropriate courses in audiology for some of these courses under the advisement of the audiology faculty.

**Communicative Habilitation: Master of Science**

**Prerequisites:** Same as for Master of Communicative Habilitation.

**Fields:** Clinical audiology, speech science.

**Minors Permissible:** Psychology, physics, or Option II.

**Requirements:** 28 hours plus thesis (6-hr. min.—699).

**Required Courses:** Sp. and Dram. Arts 630, 631, 632, 633, 636, 640, 642, 648, and 680R, or equivalents; Stat. 552. Two of the following are also required: 643, 646, 647 or a course in Audiology, or their equivalents. Educational audiology majors will substitute appropriate courses in audiology for some of these courses under the direction of the audiology faculty.

**Courses**

**522R. Acting V.** (5:5:6) Prerequisite: Sp. and Dram. Arts 324R. Gledhill, Hansen  
Theory and practice of major historical and modern styles of acting and actor preparation.

**524R. Acting VI.** (5:1:2) Prerequisites: Sp. and Dram. Arts 523R or equivalent, and acting competency shown in audition. Gledhill, Hansen  
Supervised applied acting experience in full-length play produced for an audience.

**527. Narration.** (2:2:0) Clinger, Frost  
The utilization of principles, practice, materials, and visual aids to create imagery in storytelling. Valuable to teachers and youth leaders.

- 560k. Theatre Workshop.** (1-6:0:3-18 ea.) Home Study also.  
Integration in production of theatre's individual arts: literature, directing, acting, and stagecraft.
- 564. Theatre History I.** (3:3:0) Hansen, Metten  
Primitive, Egyptian, Greek, Roman, Medieval, and Elizabethan periods, to LDS theatre history.
- 565. Theatre History II.** (3:3:0) Hansen, Metten  
The history of the theatre: Oriental; Renaissance—Italy and France; Romanticism and the well-made play; birth and development of realism; departure from realism.
- 572R. Child Drama II.** (2:3:0) Oaks  
The study of theory and techniques of formal drama for and with children.
- 578R. Playwriting I.** (2:2:0) Golightly, Whitman  
Theories and techniques of conceiving and expressing experience as dramatic literature.
- 590. Selected Readings and Projects.** (1-2:0:0) Clinger  
Independent research and study outside of usual thesis work.
- 600. Speech Communication as a Profession.** (3:3:0) Bateman, Gibb, Peterson, Stephan  
A study of the literature and the profession of speech communication.
- 601. Psychology of Speech Communication.** (2:2:0) Prerequisite: Sp. and Dram. Arts 101, 401, or 403. Gibb, Peterson, Stephan  
Advanced study of the psychological elements in speech, language, and communication behavior.
- 614. Organizational Communication.** (2:2:0) Peterson  
Theory and research on questions of intraorganizational communication problems.
- 621. Ancient Rhetoric and Oratory.** (3:3:0) Stephan  
History and development of rhetorical principles in the classical world, with reference to the works of Socrates, Plato, Aristotle, Cicero, Quintilian, and others. Analysis of selected speeches from the periods.
- 624. Contemporary and American Public Address.** (3:3:0) Bateman, Clinger  
Historical and critical study of significant speeches and their relationship to American political, social, and intellectual life, with emphasis on contemporary modes of communication.
- 625. Small-Group and Dyadic Communication.** (2:2:0) Gibb, Peterson  
Theory of dyadic and small-group communication.
- 626. Argumentation and Advocacy.** (2:2:0) Bateman, Stephan  
Principles of argumentation applied to inquiry into and advocacy of social issues.
- 630. Methods and Problems of Research in Communication Disorders.** (2:2:0) K. Jones, Weaver  
A practical study of methods of scientific inquiry as applied to the disorders of communication. It is imperative that students take this course early in their graduate program to prepare them for their thesis projects.
- 631. Seminar in the Generation and Perception of Acoustic Stimuli.** (2:2:0) Weaver  
An advanced study made of the acoustics of speech sounds and their perception by the ear and mind of the listener. Current research in experimental phonetics reviewed.
- 632. Dynamics of Human Communication.** (2:2:0) Newman  
A study of the dynamics of intra- and interpersonal communication. The



human factors of personality, learning, motivation, cognition, etc., are considered from the perspective of human communication.

- 633. Anatomy and Physiology of Human Communication.** (2:2:0) Prerequisites: Zool. 105, 261, 262. Newman  
Emphasis is given to the study of the anatomy and physiology related to the processes of communication including hearing, symbolization, respiration, phonation, and articulation.
- 636. Disorders of Articulation.** (2:2:2) Prerequisite: undergraduate major in communicative habilitation or speech pathology.  
An analysis of the disorders of articulation. Systems of evaluation and correction.
- 640. Stuttering.** (2:2:1) Newman  
Evaluation and treatment of stuttering are studied. Its development and current theories of etiology are also reviewed.
- 642. Voice Disorders.** (2:2:1) Jones  
Emphasis is placed upon the organic voice disorders. Etiological factors are identified. Diagnosis and treatment procedures are studied, and practical demonstrations are given.
- 643. Communication Disorders of the Cerebral Palsied.** (2:2:1) Prerequisite: Sp. and Dram. Arts 633. Jones  
Study of the incidence, etiology, appraisal, and procedures for speech and hearing therapy of the cerebral palsied.
- 644R. Special Problems in Communicative Disorders.** (1-3:1-3:0 ea.) Prerequisite: consent of instructor.  
Individual study in the clinical or applied areas.
- 646. Oro-Facial Communication Disorders.** (2:2:1)  
Study of communication disorders associated with anomalies of palate, teeth, tongue, maxilla, mandible.
- 647. Communication Disorders of the Mentally Retarded.** (2:2:1) Low  
Advanced studies of the communication disorders of the mentally retarded. Principles and procedures of communication habilitation. Designed for speech and hearing and special education majors and other school specialists.
- 648. Aphasia.** (2:2:1) Low  
Nature, etiology, diagnosis, and therapy associated with the speech of child and adult asphasics (brain damaged) will be studied; also linguistic, behavioral, and intellectual changes.
- 650. Clinical Audiology.** (2:2:2) K. Jones, Weaver  
The theoretical basis and development of skill in the techniques of administering new and advanced audiometric procedures in the assessment of impaired hearing.
- 651. Community and Industrial Audiology.** (2:2:1) K. Jones, Weaver  
Study of hearing problems in industry, legal implications, hearing, testing of adults, and adult hearing rehabilitation.
- 652. Pediatric Audiology.** (2:2:1) Prerequisite: Sp. and Dram. Arts 351. K. Jones, Weaver  
Intensive study of the problems encountered, the rationale behind, and the audiological instruments used in assessing the hearing of infants and young children.
- 653. Hearing Aids and Instrumentation.** (2:2:0) Prerequisite: Sp. and Dram. Arts 351. K. Jones, Weaver  
Designed to acquaint students in speech, hearing, and related fields with basic designs, selection, and use of hearing aids of all types for individuals with impaired hearing.

- 656. History, Education, and Guidance of the Hearing Impaired.** (2:2:0) Pre-requisites: Sp. and Dram. Arts 130; Ed. 260. Weaver
- 657. Teaching Speech to the Hearing Impaired.** (2:2:2) Prerequisites: Sp. and Dram. Arts 130, 231. Moore
- 660R. Seminar in Interpretation.** (3:3:0) Prerequisites: Sp. and Dram. Arts 121, 123, 325, or equivalent. Gledhill  
Three subject matter areas are offered in rotation: 1. Interpretation history and theory; interpretation of classical literature. 2. Program building; lecture recitals. 3. Research-analysis of interpretation techniques and performance, including interpretative theatre.
- 664. Theatre Administration I.** (2:2:0) Henson, Oaks  
Study of theatre-management theory and practice, including budget, promotion, box office, etc.
- 665. Theatre Administration II.** (2:2:0) Henson, Oaks  
Study of theatre-administration theory and practice, including organizational philosophy, structure, development, etc.
- 668R. Special Studies in Theatre History.** (1-3:1-3:0)  
Supervised research in selected historical problems.
- 670. Technical Theatre III.** (5:5:3) Prerequisites: Sp. and Dram. Arts 420, Art 103, 237. Henson, Pope  
Advanced theories and practices of scenic design, construction, lighting, special and technical management for the theatre.
- 671. Directing III.** (3:2:2) Prerequisites: Sp. and Dram. Arts 461R and 469R, or equivalent. Hansen, Metten  
An advanced study of theories and techniques of directing for the stage through the production of two condensed scripts for presentation.
- 674R. Projects in Theatre.** (1-4:1-4:0 ea.)  
Supervised applied theory in playwriting, directing, acting, and stage-craft.
- 678. Stage Lighting.** (1-2:1-2:0) Prerequisite: Sp. and Dram. Arts 420 or consent of instructor. Henson, Pope  
Advanced theory and techniques of theatrical lighting.
- 680R. Internship Practicum in Speech Pathology.** (1-2:0:4 ea.)
- 681R. Internship Practicum in Audiology.** (1-2:0:4 ea.)
- 683R. Graduate Practicum in Audiology.** (1-2:0:1-2 ea.) Prerequisite: Sp. and Dram. Arts 351. K. Jones, Weaver  
Practice in audiological testing and instrumentation. Must be taken concurrently with either Sp. and Dram. Arts 650 or 653.
- 690. Research in Speech Communication.** (3:3:0) Gibb, Peterson, Pope  
Research, design, analysis, and strategies in speech communication. Required of all graduate students. It is imperative that graduate students take this course during their first semester.
- 691R. Internship in Speech Communication.** (1-5:1-5:0 ea.) Prerequisites: Sp. and Dram. Arts 600 and 690. Bateman  
Limited to five hours total credit.
- 693. Theory of Persuasion.** (2:2:0) Gibb, Peterson, Stephan  
A study and application of ancient and modern persuasive concepts in forming, controlling, and/or changing opinions of individuals or groups.
- 697R. Seminar in Special Theatre Forms.** (2-3:2:1)  
Theory and practice of editing, directing, and dramatizing for special theatre forms (i.e., Readers Theatre, Arena Theatre, etc.).

699. Thesis for Master's Degree. (6-9:Arr.:Arr.)

731. **Dramatic Theory and Criticism I.** (5:5:0) Metten  
An intensive survey of the history and principles of dramatic theory and criticism from ancient to contemporary times.

733. **Dramatic Theory and Criticism II.** (3:3:0) Hansen  
A study and analysis of the major dramatic forms: tragedy, comedy, melodrama, and farce, combined with the theory of directing nonconventional dramatic literature.

740. **Seminar in the Theory and History of Theatrical Costuming.** (2:2:1)

760. **Directing IV.** (2:2:0) Prerequisites: Sp. and Dram. Arts 564, 565, 671.  
Hansen, Metten, Woodbury  
Theory and techniques of directing and staging historical and period plays: Greek, Roman, Medieval, Elizabethan, Restoration, and Continental Plays.

761. **Directing V.** (2:2:0) Prerequisites: Sp. and Dram. Arts 564, 565, 671, and 733.  
Hansen, Metten, Woodbury  
Theory and techniques of directing and staging plays from the modern and abstract repertoire: Expressionism, Constructivism, Epic, Absurd, Oriental, Cruelty, Happenings.

797R. **Research.** (1-6:Arr.:Arr. ea.)

799. **Dissertation for Ph.D. Degree.** (Arr.)

## Statistics

**Professors:** Carter, Faulkner, Hilton (chairman, 204 MSCB), Nielson, Richards.  
**Associate Professors:** Beus (graduate coordinator, 248 MSCB), Hendrix, Rencher.  
**Assistant Professor:** Crandall.

**Program:** Master of Science (M.S.).

**Entrance Examinations Required:** None.

**Application Consideration Dates:** Fall Semester, June 30; Winter Semester, November 15; Spring or Summer terms, March 10. If application is also made for financial assistance, all forms should be received three months prior to each of the above deadlines.

**Entry Times:** Fall Semester recommended, or Spring Term if Stat. 501 (or equivalent) has not been completed.

### Master of Science

**Prerequisites:** Stat. 501, Math. 315, and Comput. Sci. 131 or their equivalents.

**Fields:** Applied or theoretical statistics.

**Minors Permissible:** Option I or Option II.

**Requirements:** Minimum of 24 semester hours plus thesis (6-hr min.—699). Each student must pass a written examination over the material covered in Stat. 501, part of 502, 520, and 521, before beginning his thesis research.

**Required Courses:** Stat. 636; exactly two hours of Stat. 591R; one course from Stat. 611, 621, 631, 632, 690R; all of the following courses unless taken as an undergraduate: Stat. 520, 521, 522, 531 (or 534). Foreign students may be required to take ESL 101 or 102, depending on the outcome of an interview with the department after their arrival at Brigham Young University.

This program is designed to prepare students for (1) work in industry or government or (2) Ph.D. work in statistics.

### Minor Programs

**Master's Level:** 9 hours in any statistics course numbered 300 and above (except 552).

**Ph.D. Level:** Stat. 520 and 521, plus 9 additional hours from statistics courses numbered 433 and above (except 501, 552, and 554).

### Courses

- 501. Statistics for Research Workers I.** (5:4:3) Prerequisite: Math. 105 or equivalent. Beus, Carter, Hilton  
Probability; estimation; tests of hypotheses; regression; analysis of variance; nonparametric methods. For natural or social science students.
- 502. Statistics for Research Workers II.** (5:4:3) Prerequisite: Stat. 501 or equivalent. Beus, Carter, Hilton  
Analysis of covariance; multiple regression; linear models; design of experiments; sampling. For natural or social science students.
- 520, 521. Theory of Statistics I, II.** (3:3:0 ea.) Prerequisite: Math. 214 or equivalent. Recommended: a previous course in statistics and concurrent registration in Math. 243 and 244 respectively.  
Development of the theory of discrete and continuous distribution functions, including derived sampling distributions; tests of hypotheses and point and interval estimation.
- 522. Theory of Linear Models.** (4:4:0) Prerequisite: Stat. 521. Nielson, Rencher, Richards  
Linear hypotheses, with application to regression and design.
- 531. Experimental Design.** (3:3:0) Prerequisite: Stat. 337 or 501. Carter, Hilton  
Randomized blocks, Latin squares, factorial designs, fractional replication, confounding, and incomplete blocks.
- 534. Sampling.** (3:3:0) Prerequisite: Stat. 337 or equivalent. Nielson  
Systematic, simple random, stratified, and cluster sampling; optimum allocation; ratio estimation; etc. Applications to various fields.
- 536. Regression Analysis.** (3:3:0) Prerequisite: Stat 337 or 501. Carter, Rencher  
Multiple regression; introduction to model building and nonlinear estimation; examination of residuals; step-wise regression; Hocking-Leslie algorithm.
- 541. Advanced Probability.** (3:3:0) Prerequisite: Math. 214. Recommended: completion of or concurrent registration in Stat. 520. Burton, Faulkner  
Advanced combinatorial methods; random walk; introduction to Markov chains and stochastic processes.
- 552. Statistical Methods in Education I.** (3:3:0) Prerequisite: consent of instructor. Hendrix  
Measures of central tendency, variability; correlations; introduction to probability and statistical inference. Computer usage stressed. For majors in education and related fields.
- 554. Statistical Methods in Education II.** (3:3:0) Prerequisite: Stat. 552. Hendrix  
Educational computer applications of analysis of variance and covariance, multiple and partial regression and correlation, and nonparametric methods. Introduction to experimental design.
- 591R. Graduate Seminar in Statistics.** (1:1:0 ea.)



- 611. Multivariate Statistical Methods.** (3:3:0) Prerequisite: Stat. 337 or 501. Rencher  
Inference about mean vectors and covariance matrices; multivariate analysis of variance and regression; canonical correlation; discriminant analysis; principal component analysis; factor analysis.
- 621. Advanced Theory of Statistics.** (3:3:0) Prerequisites: Math. 315; Stat. 521. Recommended: Stat. 522. Faulkner, Nielson, Rencher  
Advanced topics in the theory of estimation, testing hypotheses, multiple regression, and multivariate analysis.
- 631. Advanced Experimental Design.** (3:3:0) Prerequisites: Stat. 521, 531. Recommended: Stat. 522. Carter, Nielson  
Advanced topics in experimental design. Offered 1973 and alternate years.
- 632. Advanced Industrial Statistics and Reliability.** (3:3:0) Prerequisites: Stat. 432, 521, or equivalent.  
Advanced topics in sequential sampling, tolerance limits, life testing, and reliability.
- 636. Advanced Statistical Methods.** (3:3:0) Prerequisites: Stat. 337 (or 501), 521. Carter, Richards  
Analysis of variance with unequal subclass frequencies, including missing cells; analysis of covariance; orthogonal polynomials; multiple comparisons and related topics.
- 690R. Special Topics in Statistics.** (3:3:0 ea.) Prerequisite: consent of instructor.  
Varied specialized topics in statistics.
- 695. Readings in Statistics.** (1-3:1-3:0) Prerequisite: consent of department.
- 699. Thesis for Master's Degree.** (6-9:Arr.:Arr.) Prerequisite: consent of department.

## Zoology

**Professors:** Allen, Allred, Andersen (graduate coordinator, 155 WIDB), Chapman, Frost, C. L. Hayward (emeritus), Heninger, Jaussi, Jorgensen, Murphy (chairman, 575-A WIDB), Nicholes, V. Tanner (emeritus), W. Tanner, Tip-ton, Wood.

**Associate Professors:** Barnes, Booth, Braithwaite, Heckmann, Miller, Smith, C. M. White.

**Assistant Professors:** Bradshaw (on leave), Farmer, G. L. Hayward (on leave), Jeffery, Rhees, Seegmiller, D. A. White, Whitehead.

**Programs:** Master of Science (M.S.), Doctor of Philosophy (Ph.D.).

**Entrance Examinations Required:** Graduate Record Examination prior to consideration for admission and a departmental written examination during the first semester of resident study.

**Application Consideration Dates:** Prior to March 1 for Fall Semester and October 1 for Winter Semester.

**Entry Times:** Fall or Winter semesters.

### Master of Science

**Prerequisite:** B.S. degree in zoology from an accredited college or university, or the equivalent.

**Fields:** Biological science education, entomology, genetics, zoology.

**Minors Permissible:** Any established minor in the biological or physical sciences; Option II.

**Requirements:** Minimum of 30 semester hours including thesis (6-hr. min.—699). (Consult graduate coordinator for modified requirements in biological science education.)

**Required Courses:** Zool. 521; 696R during two semesters of resident study.

### Doctor of Philosophy

**Prerequisites:** Master's degree in zoology or the equivalent. Option II for the two-language requirement or its equivalent may be met by completing 9 credit hours in computer science courses (131 and above), in mathematics (112 and above), in statistics (502 and above), or with a combination of 9 credit hours from these fields.

**Fields:** Entomology, genetics, zoology.

**Minors Permissible:** Any established minor in the biological or physical sciences.

**Requirements:** Minimum of 24 semester hours plus dissertation (18-hr. min.—799), plus one semester of off-campus study recommended unless M.S. is completed elsewhere.

**Required Courses:** Zool. 521; 696R during two semesters of resident study.

### Courses

☐ **Statistics 501. Statistics for Research Workers I.** (5:4:3)

☐ **Microbiology 511. Immunology.** (4:2:6)

**517. Experimental Parasitology.** (3:2:3) Prerequisite: Zool. 317 or 417.  
Andersen, Heckmann  
Offered 1975-76 and alternate years.

**521. Zoological Literature.** (2:2:0) Wood  
Literature research techniques necessary for zoological research.

☐ **Botany 522. Biological Instrumentation.** (3:1:6)

**530. Insect Classification.** (4:1:6) Prerequisite: Zool. 331. Wood

**531. Insect Physiology.** (4:2:6) Prerequisites: Zool. 331; Chem. 151 or 351.  
Whitehead

**532. Insect Morphology.** (3:2:3) Prerequisite: Zool. 331. Whitehead

**534. Economic Entomology.** (3:2:2) Prerequisite: Zool. 331. Jorgensen  
Offered 1974-75 and alternate years.

**535. Medical Entomology.** (3:2:2) Prerequisite: Zool. 331. Recommended:  
Micro. 331. Tipton  
Arthropods and Arachnids which affect the health of man and domestic animals.

**536. Comparative Toxicology.** (3:2:3) Prerequisites: general biology and a course in organic chemistry. Booth  
Modes of action and biological transformations of pesticides in living animals, plants and the environment. Techniques emphasized.

**538. Immature Insects.** (2:0:4) Wood  
Offered 1975-76 and alternate years.

**543. Ichthyology.** (2:2:2) Home Study also. Prerequisite: Zool. 203. D. White

**545. Herpetology.** (2:1:2) Prerequisite: Zool. 203. W. Tanner

- 546. Ornithology.** (2:1:2) Prerequisite: Zool. 203. Frost
- 547. Mammalogy.** (2:2:2) Prerequisite: Zool. 203. Smith
- 551. Population Ecology.** (3:2:3) Prerequisites: Zool. 451; concurrent registration in or completion of Stat. 501. Jorgensen  
Offered 1974-75 and alternate years.
- 556. Limnology.** (3:2:2) Prerequisite: Zool. 451 or equivalent. White  
Field trips scheduled four Saturdays.
- 565. Endocrinology.** (3:3:0) Prerequisite: Zool. 465 or 466. Heninger, Jaussi
- 566. Experimental Endocrinology.** (2:0:6) Prerequisite: Completion of or concurrent registration in Zool. 565. Heninger, Jaussi  
Experiments selected to familiarize students with techniques used in research.
- 575. Biochemical Genetics.** (3:3:0) Prerequisites: Bio. Ag. Ed. 376; Chem. 581. Farmer  
The chemical basis of genetics, with emphasis on eucaryotic organisms. Offered 1974-75 and alternate years.
- 576. Human Genetics.** (3:3:0) Prerequisite: Bio. Ag. Ed. 376.  
Genetics of physical and mental characteristics of man; heredity and environment; genetics of human populations. Offered 1974-75 and alternate years.
- 577. Developmental Genetics.** (3:3:0) Prerequisites: Zool. 483, general genetics. Bradshaw, Jeffery  
Control of gene expression during embryonic development; genetic mechanisms of cell differentiation.
- ☐ **Geology 580 or 581. Invertebrate Paleontology.** (4:3:2)
- 582R. Advanced Topics in Developmental Biology.** (2:2:0 ea.) Prerequisite: Zool. 483.
- 583. Etiology and Pathology of Brain Injury.** (3:3:0) Prerequisite: consent of instructor. Chapman  
May not be used for credit toward a major in zoology.
- 584. Neurology.** (3:2:2) Prerequisite: consent of instructor. Chapman  
Functional anatomy of the nervous system, including the principal nervous pathways.
- ☐ **Geology 584. Vertebrate Paleontology.** (4:3:2)
- 591R. Special Problems in Zoology.** (1-2:Arr.:Arr. ea.) Prerequisite: consent of instructor.
- 601. Zoogeography.** (2:2:0) C. White  
Offered 1974-75 and alternate years.
- 609. Systematic Zoology.** (2:1:2) Wood  
Offered 1974-75 and alternate years.
- ☐ **Microbiology 611. Advanced Immunology.** (2:2:0)
- 612. Advanced Invertebrate Zoology I.** (3:2:3) Prerequisite: Zool. 202 or consent of instructor. Braithwaite  
Comprehensive biology of the lower Metazoa (Parazoa, Radiata, Acoelomata, Pseudocoelomata, and lower Protostomia). Offered 1974-75 and alternate years.
- ☐ **Botany 620. Cell Biology.** (4:3:3)
- 620. Theoretical Zoology.** (2:2:0) Prerequisite: consent of instructor. Tanner
- ☐ **Botany 621. Electron Microscopy.** (2:2:0)

- ☐ **Botany 622. Electron Microscopy Laboratory.** (1:0:3)
- ☐ **Microbiology 632. Cell and Tissue Culture Techniques.** (2:0:4)
- 633R. Advanced Topics in Entomology.** (1-2:Arr.:Arr. ea.) Prerequisite: consent of instructor.
- ☐ **Botany 638. Genetics of the Fungi.** (2:2:0)
- ☐ **Microbiology 641. Radioactive Tracer Techniques in Biology.** (3:1:6)
- 644R. Advanced Topics in Vertebrate Zoology.** (1-4:Arr.:Arr. ea.) Prerequisite: consent of instructor.  
Studies in ichthyology, herpetology, ornithology, or mammalogy.
- 651. Community Ecology.** (3:2:3) Prerequisites: Zool. 451; Stat. 501 or equivalent. Smith, White  
Extended field trip required.
- 657R. Advanced Topics in Animal Ecology.** (2:2:0 ea.) Prerequisite: Zool. 451.  
The specific topic will be announced at the beginning of each semester.
- ☐ **Microbiology 661. Microbial Genetics.** (4:2:6)
- 662. Advanced Physiology I.** (2:1:2) Prerequisite: Zool. 465 or 466 or consent of instructor. Jaussi, Heninger
- 663. Advanced Physiology II.** (2:1:3) Prerequisite: Zool. 465 or 466 or consent of instructor. Jaussi, Heninger
- ☐ **Botany 676. Cytogenetics.** (3:2:3)
- ☐ **Botany 678. Organic Evolution.** (3:3:0)
- ☐ **Geology 680. Micropaleontology.** (3:2:2)
- ☐ **Geology 685. Paleoecology.** (4:3:2)
- 696R. Graduate Seminar.** ( $\frac{1}{2}$ :1:0 ea.)
- 699. Thesis for Master's Degree.** (Arr.)
- 799. Dissertation for Ph.D. Degree.** (Arr.)





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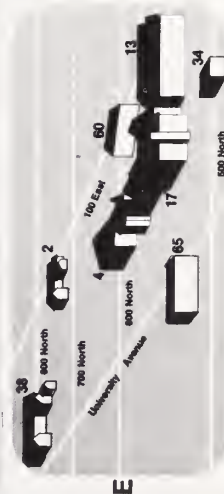
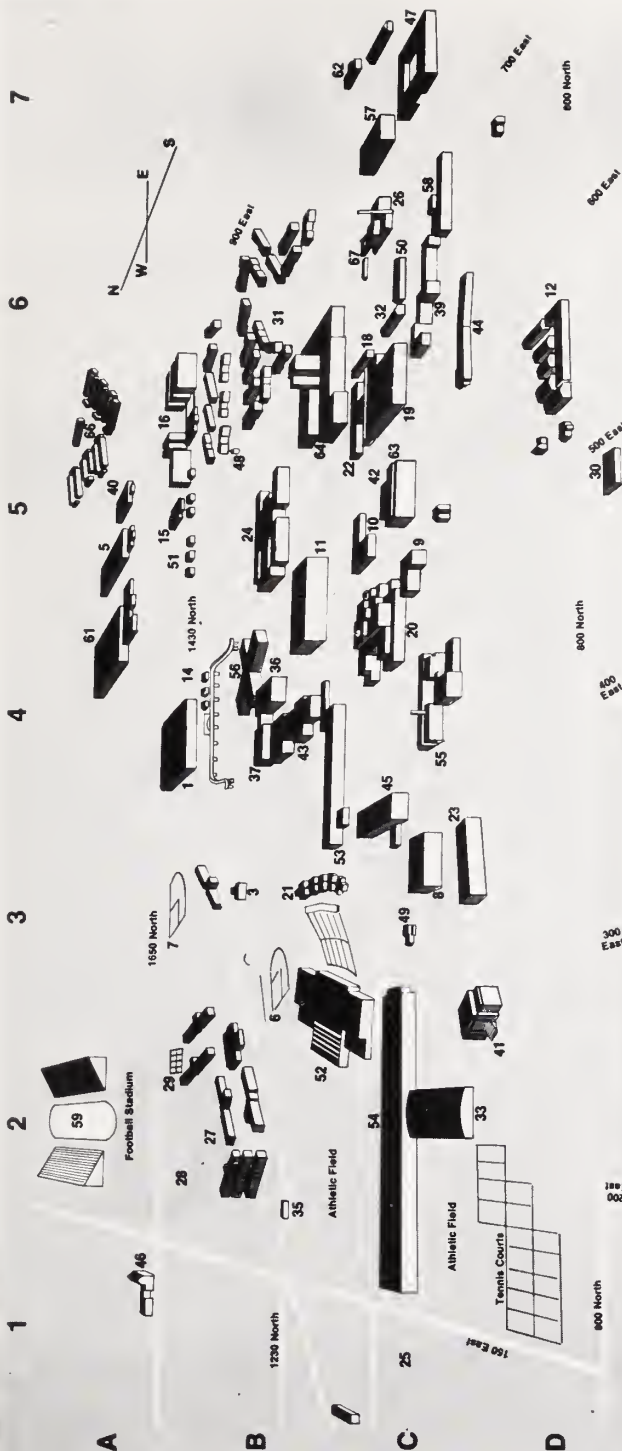
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